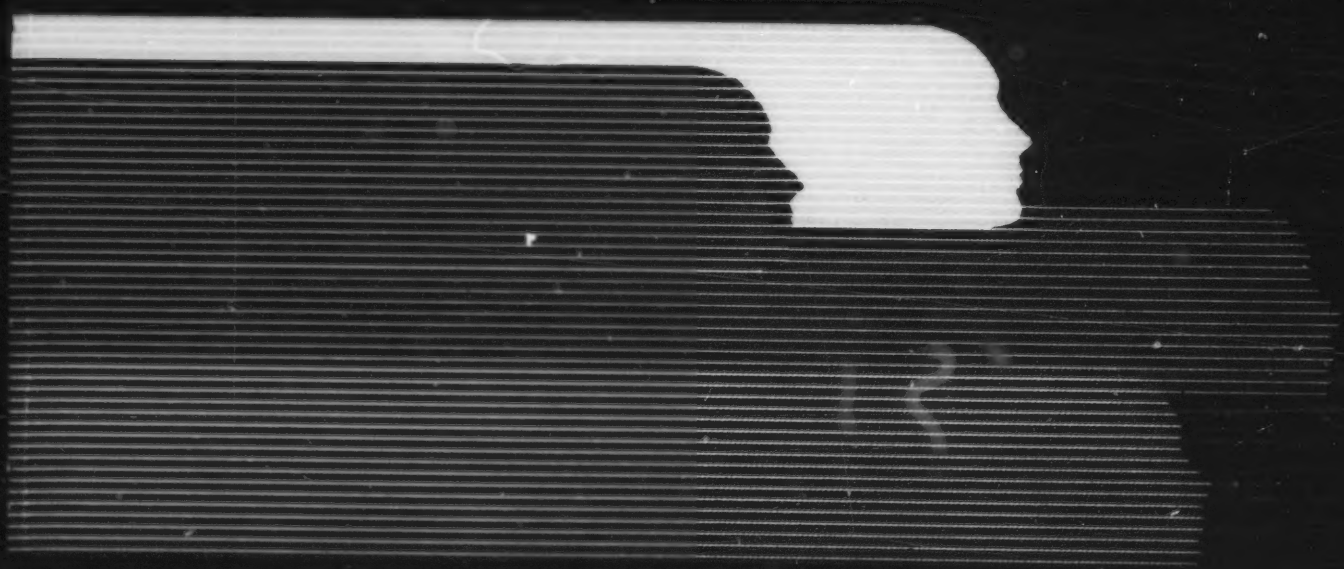
Women, Sport and Physical Activity

Research and Bibliography

by Dr. Helen Lenskyj

Second Edition



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Foreword

I would like to express my appreciation once again to Sport Canada for its financial support of this important resource on Women in Sport.

This project was carried out in collaboration with a committee, whose members reviewed drafts and offered guidance and support. I would like to thank the members of this committee – Anne Hall, Suzanne Laberge, Bruce Kidd, Kathy McDonald, Diane Palmason, Richard Paradis, Jerilynn Prior, Elizabeth Ready and Linda Wheeler – for their valuable contributions. As well, I would like to acknowledge the help provided by university colleagues in Ottawa, Kingston, Montreal, Toronto, Winnipeg and Edmonton and the translation services of Health and Welfare Canada and Traduction Équivalent Inc. Thanks are also due to Anne Molgat for her valuable work on the second edition, and to Liz Green for her ongoing support. Bibliographical references were provided by the Sport Information Resource Centre (SIRC) and the Specialized Information Retrieval and Library Services (SIRLS).

I participated as a discussion leader in the final session of the 1985-86 Women in Sport and Fitness Leadership Program in Ottawa, attended by eight interns (and one baby). The following poem by Karen Larson, one of the interns, effectively captures the spirit of sisterhood generated by feminists working together for change. I believe it also provides a fitting introduction to this book, which is dedicated to all women who are working towards changing sport for women.

Helen Lenskyj

A Gift To Ourselves

We came together.
To work, to share, to laugh,
and to listen ...
we came.
To seek
the wisdom of our sisters:
it is here that we began...
to let our spirits shine.

We listened.
We heard her voice:
and she was us.

She said "vulnerability is strength"
that "in reaching out we also give."
"Learn" she said.
And we did:
from unexpected closeness,
from silence,
the power of anger and passion,
from warmth and nurturance,
and from a baby's cry.

Empowered by our womanhood
and embracing our differences,
we celebrate our gift.
We dance the sweetest dance
–of change.
And we enjoy.

We found our voice
...it is sweet and it is clear.
It's time to sing our song.
The stage is ours.

and we begin...

© Karen Larson, 1986

Helen Lenskyj, Ph.D., is a sport sociologist and historian working as a writer-researcher in Toronto. An active feminist, she has served on the executive of the Canadian Association for the Advancement of Women and Sport (CAAW&S) and produced a discussion paper on sex equality in sport for CAAW&S and Fitness and Amateur Sport's Women's Program. Her first book, *Out of Bounds: Women, Sport and Sexuality*, was published by Women's Press in the fall of 1986.

Helen is currently a faculty member in the *Department of Adult Education* at the Ontario Institute for Studies in Education.

Chapter One
Introduction

There is a long-standing tradition in most areas of scholarly research for investigators to focus on men as a gender group, either ignoring women altogether or applying generalizations based on the study of male behaviour and experience to both sexes. This androcentric approach results in a distorted and incomplete picture of women's experience, men's experience and human experience. Moreover, it fails to consider the conditions of women's oppression in a society where power and privilege are unequally distributed between the sexes. Feminist scholars have addressed the problem of sex-related bias in research by developing an approach that begins with the standpoint of women, formulating questions and developing theory grounded in women's experience. This is a necessary first step before any integration of male and female perspectives is possible (Eichler and Lapointe, 1985).

An androcentric approach — one which feminists have termed "malestream" — has long characterized sport-related research, although in the past decade the number of studies specifically concerned with women has increased dramatically. While most investigators continue to use male sporting performance, experience and practice as the point of reference for their analysis of females in sport and physical activity, some are beginning to adopt a woman-centered or feminist perspective. In this endeavour, they are joining the ranks of feminist scholars who, over the past twenty years, have contributed to a respected and widely-read body of literature spanning all the major disciplines. Although some readers may find the feminist perspective of this book new and unfamiliar, it is in fact closely related to the feminist analyses that have been developed around issues such as education, employment and health.

Introduction to the second edition

One of the first steps in the process of compiling the second edition, early in 1988, was to request updates from the two major data bases that had provided references for the first edition: the Sport Information Resource Centre/Centre de documentation pour le sport (SIRC/CDS), Ottawa, and the Specialized Information Retrieval and Library Services (SIRLS) Sport and Leisure Database and Collection (formerly the Sport Information Retrieval System for the Sociology of Leisure and Sport) at the University of Waterloo, Ontario. Each produced printouts numbering two to three thousand references!

Given this volume of research generated over the past three years, it was not possible to conduct the same rigorous examination of all sources that was carried out for the first edition. Many articles were included in the bibliographic sections, especially in sections 4 and 5, solely on the basis of the abstract provided either by the author of the article, or by SIRC or SIRLS. Every effort has been made to select woman-centred resources, but it is up to the reader to evaluate new articles and books in terms of the selection criteria listed (see p. 11 The selection process).

Information on the location of the article is given in the bibliographic sections. SIRLS can provide users with full annotations for all of its holdings. The SIRC data base covers both the social sciences and the medical sciences, while SIRLS covers the social sciences only.

Most of the revisions to the second edition take the form of new materials listed in the bibliographic sections. In some instances, these sections have been divided differently, and new subsections have been added. Some deletions have also been made throughout the book in order to keep the references and the text up-to-date and accurate. Many new sources come from the feminist literature in the social sciences and the women's health movement. Where possible, Canadian materials have been given preference.

Indexes such as *Women's Studies Abstracts* and *Canadian Women's Periodicals/Périodiques pour femmes canadiennes*, published by the Canadian Research Institute for the Advancement of Women/Institut canadien de recherches sur les femmes (CRIAW/ICREF) are useful research tools. A recent bibliography, *Women in Sport* by Michele Shoebridge (London: Mansell, 1987) lists over 1,600 references from international, English language publications. The Canadian Women's Indexing Group/Comité du répertoire des femmes canadiennes will publish the *Canadian Feminist Periodical Index/L'Index des périodiques féministes canadiens 1972-1982* and the *Canadian Feminist Thesaurus/Le Thesaurus féministe du Canada* in 1990; both will provide valuable help to feminist researchers.

Rationale

It is the intention of this book to provide a feminist critique of the literature on women in sport and physical activity across the major disciplines. For each issue area, the critique will be followed by a list of selected sources for further reading, with key references identified by an asterisk. Where possible, relevant advocacy organizations, along with other more general sources, will be listed. Because of the practical need to divide the material into subject areas, there is considerable overlap, with many sources and topics recurring throughout the book.

Quality rather than quantity has been a major criterion for the selection process. Because of the diversity of topics and the unevenness of research, there is considerable variation in the volume and depth of sources listed for each section. For some topics, there is an abundance of material that would be useful to readers of various backgrounds and interests — articles written from within the bounds of a particular discipline and yet accessible to non-specialist readers. In other cases, the sources listed are characterized, unavoidably, by a technical approach. Thus, the purpose of the accompanying reviews of the literature is to present the main ideas in clear, non-technical language, providing sufficient background for readers who wish to pursue the topic further.

While most articles were taken from academic journals, other important sources included feminist periodicals, sports magazines and popular literature. For some topics, there was more than the usual proportion of these kinds of sources. In some instances, the problem was a dearth of good scholarly literature addressing the issue while, in other sections, the popular literature served as a valuable adjunct to the more academic articles, providing a personal or grassroots perspective that has not yet been incorporated into the academic literature.

In the social sciences sections, preference was given to Canadian sources, but the physiology sections, of necessity, included more American than Canadian sources, since most English language medical and scientific journals in these fields are American. A number of United Kingdom and Australian articles were also included in the social science sections, since these were found to have some relevance to the Canadian situation. Most of the sources were published within the last ten years; the small number of articles which date from the 1970s or earlier were included because they were crucial to subsequent analyses, or because they still constitute the most thorough or insightful discussions of particular issues.

Like those engaged in any radical challenge to the status quo, feminist scholars face formidable barriers. The traditional gatekeepers of knowledge — those who make funding and publishing decisions — have tended to encourage and entrench malestream inquiry. As a result, much feminist work remains under-funded and unpublished. Recent initiatives made by the Social Sciences and Humanities Research Council of Canada in publishing guidelines for non-sexist research, represent a positive step in promoting feminist scholarship (Eichler and Lapointe, 1985).

It is clear that the growing feminist tradition in sport-related research is timely, given the conservative, often regressive, swings of the past few years that are evident in societal attitudes and practices surrounding female sporting participation. In the United States, for example, the equality provisions of Title IX have been seriously eroded by several recent court decisions in sport-related cases. In Ontario, the only province in Canada to exempt sport from its human rights code, the move to eliminate that exemption prompted responses ranging from ridicule to panic on the part of many sport administrators.

For women in physical education and sport administration, for advocacy groups concerned with issues of women in sport, and for students and researchers working in this area, this book presents the major research questions, evaluates existing literature, identifies areas for future investigation and lists recent, relevant sources for each topic discussed. This publication will also facilitate the research process for users of SIRC and SIRLS which, along with major university libraries, house literally thousands of articles and books on the subject. Finally, it is intended that the book itself will serve as a reference for those whose professional or scholarly interests are related to women in sport and physical activity.

The selection process
Sources were included if they met these basic criteria:

a) they were free of sex-related, heterosexist or other bias;
b) they did not make erroneous assumptions or unproven generalizations based on male subjects or a male model;
c) they did not perpetuate negative stereotypes of women, particularly female athletes;
d) they were not patronizing or prescriptive in tone.

Articles were screened for sex-related bias because such research results in a distorted or incomplete portrayal of women's experience, one which ignores the special conditions of women's lives in a society in which men comprise the dominant gender group (Eichler and Lapointe, 1985). In the sport context, for example, discussions of women's lower participation rates or performance levels often ignore the institutionalized barriers to full female involvement, resulting in analyses which "blame the victim" for her alleged lack of ability, interest or dedication. In other analyses sex-related bias is evident in the uncritical manner in which commentators espouse the traditional male model of sport, with its emphasis on strength and endurance, competitiveness and achievement. Feminists have proposed that values such as cooperation, kinaesthetic appreciation and lifetime participation should also be considered.

Heterosexist bias is seen by some as having an even greater impact on the research process. For example, radical feminists have argued that male control of female sexuality, achieved in part by institutionalized heterosexuality, is a central component in women's oppression (Rich, 1980; 1983). One outcome is the predominance of research which, failing to consider the social construction of female sexuality, femininity and the female sex role, treats behaviour that is, in fact, shaped by social and cultural forces as "natural." Examples of heterosexist assumptions in sport-related research are to be seen in the preoccupation in sports gynecology with the female athlete's unquestioned destiny as wife and mother. Thus, much of this literature is prescriptive, giving primacy to medical control of fertility, while ignoring a woman's right to make informed choices regarding her sporting career, her lifestyle and her reproductive functioning.

Heterosexist assumptions are evident, too, in much of the sex-role and socialization research in social psychology and sociology. For example, male subjects are asked to rank the "femininity" or "attractiveness" of female athletes and their desirability as girlfriends; and women are asked whether their boyfriends or husbands encourage their sporting participation, questions which ignore the possibility of primary same-sex relationships in the lives of female athletes. This research frequently uses the non-athlete's personality and sex-role identity as the norm to which the athlete's characteristics are compared, a practice which perpetuates negative stereotypes of sportswomen (see Sport, Gender and Sexuality, p. 48).

In exercise physiology and related fields, research investigating sex differences has rarely been non-sexist or free from assumptions based on a male model. It is possible to examine sex differences and avoid setting up male physiology, performance or practices as the norm by which females are measured. For example, a comparison of male and female athletic performance should note sex differences in centre of gravity and flexibility (which may predispose females towards superior performances in gymnastics, figure skating, etc.), as well as differences in strength and endurance (which may produce superior male performance in certain sports). Furthermore, the absence of sex differences is a significant finding which needs to be reported, especially in sport-related research where investigators have long been preoccupied with demonstrating how much females differ from males and, thus, how unsuited females are for certain sports.

On the issue of sexist language, it was found, in the course of preparing the bibliography, to be impractical to exclude sources which used male pronouns to denote male and female persons. The inclusion of such sources should by no means be interpreted as condoning sexist language. It is encouraging to note that some publishers and editors now expect contributors to satisfy the requirement of nonsexist language, and it is hoped that, in the future, there will be no need to include any book or article which renders women invisible through its language.

Considerable care has been taken to subject all the sources listed to rigorous examination, with the exception of some Masters' and Ph.D. theses, which were selected on the basis of abstracts only. Due to the constraints of time and space, not

every source has been discussed specifically in the review sections. It should not be assumed that every source included here merits a feminist "seal of approval" for its woman-centered perspective. Unfortunately, only a minority qualified on these grounds, a clear indication of the need for more research.

A feminist critique

Except for some research in the social sciences, a feminist perspective has rarely surfaced in sport-related literature. Although there has been escalating scholarly interest in this area over the past decade, research *on women* is not necessarily feminist or woman-centered research, since much of it fails to meet even the basic criteria listed above. Because of the dearth of explicitly feminist analysis in sport, it has been necessary, in the course of writing this book, to borrow from other areas of feminist scholarship and practice and to apply these insights to sport-related questions. Developments in the women's health movement, for example, especially in relation to mental health and reproductive function, were found to be particularly relevant. In other areas, the connections between the sport issues and the borrowed analyses were more tenuous, but nevertheless important. It is clear that malestream research in exercise physiology, sport medicine and sport psychology warrants the kinds of critical analyses developed in feminist sociology, psychology and philosophy. It is necessary, too, to challenge the basic assumption of objectivity within the practice of science and to uncover the hidden effects of gender, class and race/ethnicity in these branches of research (see Feminist critique of science p. 98).

How to use this book

Bibliographic items are classified in small units, rather than in a comprehensive list, at the end of each section. This method facilitates investigation of a specific issue but may make an overview of the field more difficult. For this reason, key articles are identified in the text. Additionally, cross-referencing is provided in the index, and there are cross-references in the text to other related sections. It is necessary to consult the index for information on specific sports, since these are not differentiated in the general organization of the book.

Division into sections and subsections is unavoidable in a book of this kind, and may have the undesired effect of creating artificial barriers between topics when, in fact, the connections between the social and the medical sciences, as well as relationships between topics within a discipline, are crucial to a full understanding of many issues. For this reason, the reader is urged to explore each topic fully by means of the cross-referencing system.

Feminist Theory and Practice

Because feminist analytic principles are central to the discussions throughout this publication, it is helpful at the outset to explain what is meant by feminist theory and practice, what constitutes a feminist or woman-centered approach to research and what the implications are for the study of women and sport.

Since feminist theory, analysis and political practice are not monolithic, there is a wide diversity of concerns and priorities among feminists representing liberal, Marxist, socialist, lesbian and radical positions. However, as Miles claims in a discussion of contemporary Canadian feminism, there are feminists within each category who, despite their differences, share enough common ground to justify the concept of "integrative feminism," a politics which affirms "a new set of female-associated integrative values and a new vision of the world" (Miles, 1982, p. 12). It is, for the most part, this eclectic, integrative approach that will be adopted in the analysis of women and sport presented here.

Nevertheless, there are important differences between the various feminist approaches in their explanations of women's oppression, their applications to women's experience and their recommendations for political practice. Jaggar and Rothenberg (1984) provide a thorough examination of these theories and their application to paid labour, the family and sexuality. As well, they give separate consideration to the unique aspects of oppression experienced by women of colour. Hall (1985) discusses major theoretical approaches, paying particular attention to questions of epistomology and methodology and to the implications for the social analysis of sport. Four approaches — liberal, Marxist, socialist and radical (encompassing lesbian) — will be reviewed briefly here.

Major theoretical approaches

Liberal feminists see the roots of oppression in women's lack of equal opportunity, particularly in relation to education and employment; they direct their political efforts towards correcting these structural inadequacies. Traditional Marxist feminists view class relations under capitalism as the primary source of oppression for both sexes.

Socialist feminists focus on women's specific oppression in a class society: women's economic exploitation in the public realm and male control over women's productive and reproductive labour in the private realm. Thus, socialist feminism requires the abolition of both capitalism and patriarchy.

Radical feminists believe that the systematic domination of women by men in every area of private and public life, exemplified by male control over female sexuality, is the most fundamental and pervasive form of oppression in society. Women's struggle against male domination encompasses the realms of family and sexuality as well as the economic and political realms; solidarity among women is central to this struggle.

Feminist research methods

The epistemological bases from which researchers start their investigations are either implicitly or explicitly ideological in nature. Scholarly inquiry is neither value-free nor objective, but like all human activities in a gendered, class society, is socially constructed and rooted in male-centered conceptions of the nature and production of knowledge (Hall, 1985).

In its selection of research methods compatible with its epistemological base, the liberal approach corresponds approximately with the functionalist paradigm in sociology, which suggests that social behaviour is largely determined by social structures and can be measured empirically. In sport research, this may be evident in the emphasis on quantitative methods: for example, measuring female performance, personality variables or participation rates in relation to certain social-cultural factors, while overlooking broader issues related to the ideological context in which women's experience is situated (see Sport, Culture and Society p. 38).

Socialist and radical feminist approaches to these epistemological questions require that the ideological (classist and sexist) underpinnings of knowledge be taken into account. Therefore, they argue the need for investigators to take the standpoint of women, as a necessary corrective to existing sex bias in the formulation of research questions, in the methodology employed and in the interpretation of findings. Other important aspects of this approach include the requirements that the relationship between researcher and researched be a collaborative one and that qualitative methods taking human context into account be utilized (Wine, 1982).

In the process of doing feminist research, fundamental requirements of non-sexist research must be considered. These include awareness of sex as a social variable; the development of gender-sensitive concepts, models, theoretical frameworks and research instruments; and the use of non-sexist, sex-appropriate language. Guidelines like these are increasingly viewed as minimum prerequisites for *any* worthwhile scholarly inquiry and are by no means limited to feminist research (Eichler and Lapointe, 1985).

There is, of course, a need for research concerned only with women or girls, since such studies are crucial to fill the gaps left by past generations of researchers. In psychology, for example over two-thirds of the research on human subjects has been on males and has been generalized to all humans (Wine, 1982). To stress the need for research on females, however, is not to imply that every study related to women contributes to the body of feminist research or to the quality of women's lives. In gynecology, for example, menstruation has been the subject of extensive research for the past century, but it was only recently that menstrual pain was recognized by (male) doctors as real, and treatable.

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Benston, M. Feminism and the critique of scientific method. *In, Miles, A. Finn, G. eds., Feminism in Canada: from pressure to politics. Montreal: Black Rose Books, 1982, p. 46-66.*

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Frye, M. A lesbian perspective on women's studies. *In, Cruikshank, M. ed., Lesbian studies. Old Westbury, N.Y.: Feminist Press, 1982, p. 194-198.*

Frye, M. The politics of reality: essays in feminist theory. Trumansburg, N.Y.: Crossing Press, 1983.

Gilligan, C. In a different voice. Cambridge: Harvard University Press, 1982.

GREMF. Approches et méthodes de la recherche féministe: actes du colloque de mai 1985. Les cahiers de recherche du Gremf, no. 1. Québec: Université Laval, 1985.

Hall, M.A. Knowledge and gender: epistemological questions in the social analysis of sport. *Sociology of sport journal 2 (1), 1985, 25-42.* SIRC, SIRLS

Jaggar, A.; Rothenberg, P. Feminist frameworks. 2nd ed. New York: McGraw-Hill, 1984.

Lapointe, J.; Eichler, M. Le traitement objectif des sexes dans la recherche. Ottawa: CRSHC, 1985.

Lundberg, N. How can we dismantle the master's house? Preliminary report... language of feminist researchers and the terminology of indexes. *Resources for feminist research 13 (3), 1984, 67-68.*

MacKinnon, C. Feminism, marxism, method and the state: an agenda for theory. *Signs 7 (3), 1982, 515-544.*

Miles, A. Introduction. *In, Miles, A. and Finn, G. eds., Feminism in Canada: from pressure to politics. Montreal: Black Rose Books, 1982, p. 9-23.*

Rich, A. Compulsory heterosexuality and lesbian existence. *Signs 5 (4), 1980, 631-660.*

Roberts, H. Doing feminist research. London: Routledge and Kegan Paul, 1981.

Sherif, C. Bias in psychology. *In, Sherman, J. and Beck, E. eds., The prism of sex. Madison: University of Wisconsin Press, 1979, p. 93-133.*

Shoebridge, M. Women in sport. A select bibliography. London: Mansell Publishing Limited, 1987. SIRC, SIRLS

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Stanley, L. How the social science research process discriminates against women. *In, Acker, S. and Piper, D., eds., Is higher education fair to women? Surrey: Society for research in higher education, 1984.*

Vickers, J. Memoirs of an ontological exile: the methodological rebellions of feminist research. *In, Miles, A. and Finn, G. eds., Feminism in Canada: from pressure to politics. Montreal: Black Rose Books, 1982, p. 27-46.*

Weisstein, N. Psychology constructs the female. *In, Gornick, V. and Moran, B. eds., Woman in sexist society, New York, Basic Books, 1971, p. 207-224.*

Wine, J. Gynocentric values and feminist psychology. *In Miles, A. and Finn, G. eds., Feminism in Canada: from pressure to politics. Montreal: Black Rose Books, 1982, p. 67-87.*

Other Resources / Ressources additionnelles

Canadian Women's Indexing Group, Women's Educational Resource Centre
Comité du répertoire des femmes canadiennes, Centre de documentation pédagogique féministe
OISE / IEPO
252 Bloor St. W.
Toronto, Ontario M5S 1V6

Canadian Women's Periodicals
Index des périodiques pour femmes canadiennes:
Canadian Research Institute for the Advancement of Women
Institut canadien de recherche sur les femmes
151 Slater St., Suite 408
Ottawa, Ontario K1P 5H3

Feminist Theory and Sex Equality in Sport

A primary goal of the liberal approach is to provide all individuals with equal access to the full range of culturally valued activities, thus enabling them to realize their human potential; sport is one such activity (English, 1978; Young, 1979). The liberal approach is well represented in sport-related literature, especially in American sources that focus on equal rights legislation as the major route to achieving sex equality in sport. An emphasis on reform or assimilation characterizes the liberal feminist approach to social change. It focuses on incremental, structural changes such as anti-discrimination legislation, affirmative action programs and non-sexist physical education curricula to bring an end to sex discrimination in sport. Furthermore, it calls for women to work within existing male-dominated sport systems, at least as a first step, in order to bring about social change that will equalize women's status.

Socialist feminist analyses of sport identify the reciprocal relationship between patriarchy and capitalism: highly commercialized, professional sport developed historically as a capitalist enterprise serving male economic interests, while at the same time glorifying the stereotype of aggressive masculinity. Women's exclusion from this male preserve was legitimized by the patriarchal myth of the sport/femininity conflict. Later developments in women's professional sport, while undermining the myths, did not challenge the capitalist nature of sport (Bray, 1983, 1985).

Emerging radical feminist analyses of sport examine the links between sport, femininity and sexuality, and the ways in which female sporting participation is constrained by sexist and heterosexist assumptions (Duquin, 1982a; Kidd, 1983; Lenskyj, 1984). Social attitudes and practices are recognized as powerful forces bolstering the ideology of female inferiority but, at the same time, women are seen as active agents, capable of resisting and challenging male domination in sport (Jennifer Hargreaves, 1982; Willis, 1982). For radical feminists, working within the system carries the risk of cooptation. Their view of social change usually calls for developing alternative institutions and programs for female sport — sport by women, for women — rather than uncritically adopting the value system of the traditional sporting establishment.

It is important to note that the various feminist approaches are not necessarily antagonistic and may well serve as complementary components of a multi-faceted strategy to bring about the kinds of social change to which feminists have long been committed. Like Miles, some feminist scholars in the sociology of sport have pointed out the need to reconcile the different approaches and to work for social change on all fronts (Hall and Richardson 1982; Westcott and Coakley, 1981; Boutilier and San Giovanni, 1983).

The 1987 special issue of *Women's Studies International Forum* on the gendering of sport, leisure and physical education, edited by M. Ann Hall, provides a valuable collection of feminist articles, both theoretical and empirical, from Canada, USA, UK, Australia, Norway and Denmark. This is probably the first international feminist journal to devote a special issue to women and sport.

The contributors to this issue take their analyses of sport and gender far beyond the usual boundaries of sport sociology. They draw upon the work of feminists in such diverse areas as peace education, the women's health movement, feminist critiques of science, explorations of the links between power, sexuality and sensuality, and so on. In doing this, they bridge some of the gaps between women's studies and sport studies, as well as bringing sport and gender issues to the attention of feminist readers and scholars.

Feminist scholars in the sociology of sport and leisure continue to break new ground in developing woman-centred approaches, and it is encouraging to see feminist work in some mainstream sport journals (e.g. Talbot, 1988; Bodenstedt and Wasmund-Bodenstedt, 1988; Thompson, 1988), as well as in feminist publications. As Talbot (1988) notes, radical feminists have provided valuable analyses by looking beyond the narrow boundaries of sport to examine broader issues of women's status in society. For example, issues of sexual harassment and homophobia, at work and at play, limit girls' and women's options as coaches, administrators and participants in many sport contexts. (see Sport and sexuality, p. 49; Sexual harassment and sexual abuse, p. 53).

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Sex Equality in Sport

Canadian human rights legislation

Discrimination on the basis of sex is prohibited in Canada by provincial anti-discrimination laws, the Canadian Human Rights Code and the Canadian Charter of Rights and Freedoms. Provincial codes apply to employment in sport and to access to public services and facilities, except in Ontario where sport-related activities and organizations were exempt from the Human Rights Code from 1981 to 1986.

On the matter of sport-related employment, the human rights codes of Quebec, Ontario, Manitoba and the Yukon now include sexual orientation among the prohibited grounds. Test cases are currently being prepared by the Women's Legal Education and Action Fund/ Fonds d'action et d'éducation juridiques pour les femmes (LEAF/FAEJ), in the hope of establishing that the anti-discrimination provisions of the Charter will apply in instances of discrimination based on sexual orientation. Lobbying is also underway in support of amending the Canadian Human Rights Act, which covers employment by federal government departments.

LEAF/FAEJ is assisting the Wen-do Women's Self-Defence Corporation in fighting a complaint of sex discrimination made to the Ontario Human Rights Commission by a man who was denied the right to join a Wen-do class (see Women-only sport and recreation, p. 68). LEAF/FAEJ will argue that Wen-do's women-only status is crucial to its effectiveness in preparing women to defend themselves against male violence. Its policies are geared toward promoting women's equality and as such are consistent with the equality provisions in human rights legislation and in the Charter.

LEAF/FAEJ also successfully argued in an intervention at the Supreme Court of Canada that sexual harassment is a form of sex discrimination and a major sex-related impediment to women in the work force. There are important implications for women in sport-related employment, and in other traditionally male-dominated workplaces resulting from this feminist interpretation of human rights acts.

Complaints of sex discrimination on the part of sports associations are usually dealt with under provincial codes, but the Canadian Human Rights Commission *may* assert jurisdiction where a national sports league is involved, as was the case in a 1980 complaint against the Canadian Football League, which was shown to be an interprovincial undertaking. However, in a 1984 case involving sex discrimination in an international youth soccer tournament, a Canadian Human Rights tribunal ruled that the activities of the Canadian Soccer Association were a provincial matter, outside its jurisdiction. The association's head office, like that of all national sport organizations, is located in Ottawa, and the tournament was held in Toronto, making this complaint subject to the Ontario code (Barnes, 1983; Lenskyj, 1984b).

The 1981 amendment to the Ontario code permitted sex-based discrimination in relation to membership in an athletic organization, access to the service or facilities of a recreational club and participation in an athletic organization. In 1982, the Ontario government established a Task Force on Equal Opportunity in Athletics, chaired by John Sopinka. Its mandate was to determine which changes, if any, were needed in the area of legislation or elsewhere to provide equal opportunity for both sexes. Sopinka recommended changes only in relation to colleges and universities, to make their athletic programs subject to the Code, while school programs and community and provincial sport organizations should continue to be exempt (Sopinka, 1983, 1984). This situation had the effect of denying females, who have been excluded from male-dominated sports, the option of lodging a complaint with the Human Rights Commission. Cases involving sex discrimination in sport have been resolved in favour of the complainant by Human Rights tribunals and courts in several other provinces.

Early in 1985, 12-year-old Justine Blainey was barred from playing on an Etobicoke hockey team because of an Ontario Hockey Association rule prohibiting female participation. In subsequent court proceedings, the Divisional Court of Ontario ruled against Blainey but in 1986 the Ontario Court of Appeal struck down Section 19(2) of the Ontario Human Rights Code, ruling that it contravened the Canadian Charter. The Court of Appeal heard an intervention in support of Blainey by the Canadian Association for the Advancement of Women and Sport/Association canadienne pour l'avancement de la femme et du sport (CAAW&S/ACAFS) and LEAF/FAEJ. The OHA's appeal to the Supreme Court of Canada failed and, in December 1987, the Ontario Human Rights Commission ruled that both the OHA and the Etobicoke club violated the human rights code by barring Blainey from play. This landmark decision means that females can no longer be barred from male teams or sports. However, neither the revised Ontario Code nor the Blainey decision *requires* sex-integrated sport, and the affirmative action provisions of the Charter and of provincial codes continue to permit female-only programs.

The litigation route to sex equality serves to increase public awareness of sex discrimination in sport and to arouse public concern and action, although admittedly this approach is costly and time-consuming, directly benefitting only a minority of females. As in other situations in female sport, these girls whose struggles are widely publicized serve an important function as role models for other young girls, disproving the myth that no girl is good enough to play against boys.

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The Integration issue

Reflecting the liberal/radical polarity in feminist theory and practice, advocates of sex equality in sport may see either integration or single-sex sport, or a combination of both, as the most effective route to achieving this goal. There are strengths and weaknesses to both approaches.

In a realm where male domination has such a strong tradition, the likelihood that "separate" will really be "equal" is rather remote. If female programs in team sports, for example, were offered in exact correspondence to male programs in an educational institution or sport organization, it is still unlikely that the quality of coaching and equipment, access to facilities, funding and/or sponsorship would be equal for both sexes given the high profile of male team sports in most schools and communities.

A way of addressing this problem is to provide equal funding, coaching, facilities, etc. for female participation in an equivalent sport — one designed to tap girls' and women's particular strengths. The problem remains, however: this activity is unlikely to be considered in its own right, but will rather be viewed as a diluted, female version of the male sport, to which it will probably be compared unfavourably.

Age is an important consideration in any discussion of the integration issue. Sex differences in physical ability are not so marked during childhood as to justify separate sport programs, and artificial divisions into boys' sport and girls' sport at a young age generally signify fewer physical challenges and a diluted sport program for girls. However, once past puberty, only a minority of females may be able to compete on an equal footing with males in sports based on strength and endurance.

On the other hand, sex is one of the least important considerations in sports which emphasize skill, agility, coordination, accuracy or strategy. Therefore, there is no valid reason for segregating adults in these sports. Similarly, any sport played at a recreational level could accommodate the various abilities of male and female players in a way which makes the game challenging to all, for example, by rule changes which handicap those players advantaged in terms of height, skill or experience.

Integration has the advantages of giving girls and women access to a sport system which is highly developed in terms of programs and career opportunities, and secure in both its private and public funding. Admittedly the system is, for the most part, male-dominated, but with an affirmative action program to guarantee equal female representation at the coaching, officiating and administrative levels, this imbalance would ultimately be corrected.

In terms of disadvantages, integration carries the risk of cooptation for those women who enter male-dominated sport systems and find themselves powerless to bring about change from within, as they had aspired to do. They may find that they have few options other than to accept the traditional male sporting ethos, thus, contributing to a system which many feminists view as perpetuating patriarchal values.

In any discussion of the integration issue, it is important not to treat male sport as monolithic. Postow (1982) has discussed the moral implications of female participation in male sport, making useful distinctions between, for example, masculine sports which reinforce male solidarity through aggressiveness and competitiveness and masculine sports which tap male athletic superiority in strength or speed. Thus, sport specific solutions may be possible, and it cannot be argued that female participation in *any* masculine sport perpetuates a system oppressive to women (Postow, 1981, 1982; Vetterling-Braggin, 1981; Grim, 1981).

The single-sex sport approach is proposed, on the one hand, by some radical feminists who promote the concept of sport controlled by women, for women, characterized by cooperation rather than competitiveness. On the other hand, the same approach is often supported by neoconservatives and traditionalists of both sexes who correctly perceive that the mingling of the sexes on the playing field, and girls' entry into traditionally male team sports, have wider implications for social relations based on male dominance and female submission.

It can be seen that these are complex questions, and that it is unlikely that one single approach will serve the interest of all girls and women in all sporting contexts.

Problems arising from the mandatory amalgamation of university athletic departments continue to plague US sportswomen, as coaching and administration of women's sports are increasingly being taken over by men (Uhlir, 1987; see also Careers in sport, p. 75, Coaching, p. 77). Furthermore, goals and values in women's sport are changing as a result of male leadership. Female intercollegiate athletes in the 1970s, for example, viewed winning as secondary to friendship and fun, whereas in the 1980s their priorities were more similar to those of their male counterparts, who tended to value winning above all else (Croxton et al., 1987).

Stressing that sex-integrated classes are not necessarily gender-equitable, Griffin (1989a, 1989b) has developed a useful framework for assessing program equity in integrated physical education programs. Combining an analysis of gender and race equity, she selected six key program dimensions and provided examples of discriminatory, biased, fair and affirmative practices on the part of teachers and students. For

example, student to student interaction is discriminatory when students engage in sexist or racist harassment, while affirmative interaction is characterised by students' self-monitoring of sex/race-stereotyped behaviour.

Griffin's framework demonstrates how teachers can go beyond the "fair" approach, i.e. non-sexist and non-racist, to an affirmative approach that intentionally and consciously involves students in developing anti-sexist, anti-racist practices in their physical education activities. Studies of feminist teaching outside of physical education also provide valuable affirmative strategies (Weiler, 1988; Spender and Sarah, 1980).

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Advocacy

Conferences and Organizations

The first National Conference on Women and Sport, organized by Fitness and Amateur Sport in Toronto in 1974, produced detailed action proposals covering research, curriculum, sport administration, coaching, commercial sport, competition, children and media (Report of the National Conference, 1974). The 1980 Female Athlete Conference at Simon Fraser University, Vancouver, developed similar recommendations, leading delegates to consider the need for a national organization concerned with girls and women in sport (Popma, 1980).

In 1981, a workshop held at McMaster University, Hamilton, resulted in the formation of the Canadian Association for the Advancement of Women and Sport (CAAW&S/ACAFS). Its functions include research, advocacy, the production of educational materials and a quarterly newsletter, an annual national conference and the organizing of events for girls and women in conjunction with National Physical Activity Week (Keyes, 1981; Theberge, 1983).

In 1980, a group of women at the Ontario Sports Centre formed Women Active in Sport Administration (WASA), a group concerned with professional development, support for women in sport and communication with other women's groups. Around the same time, a group of women at the Faculty of Physical Education and Recreation, University of Alberta, organized a National Conference on Women in Athletic Administration at Canadian Universities (Hall et al., 1981). One of their major concerns was the loss of autonomy experienced by women in university athletic departments since the merger of the Canadian Women's Interuniversity Athletic Union (CWIAU) and the Canadian Interuniversity Athletic Union (CIAU) (see Sport in Canadian Schools, Universities and Communities, p. 63; Careers in Sport, p. 77).

Liaison within and between women's groups has been identified as crucial to these advocacy efforts. Useful networks may involve the women's health movement, women's education and research organizations, as well as women's political groups whose concerns cover a wide range of issues. Relevant organizations are listed in Appendix A.

In the last three years, CAAW&S has continued its advocacy efforts at the community, provincial and national levels. Its activities have included local affinity groups, workshops for school-age girls, and provincial and national conferences. The CAAW&S newsmagazine, *Action*, formerly called *The Starting Line/Le point de départ* and the *CAAW&S Newsletter/Bulletin de l'ACAFS*, is published three times per year and includes networking news, feminist analysis and commentary.

Since 1987, CAAW&S representatives have been lobbying provincial ministries regarding the development of women in sport policies. British Columbia began its policy development process in 1987, having formed a steering committee with representatives of women involved in sport and physical activity from across the province. A program using elite female athletes to speak to high school students is now being implemented, and the committee plans to conduct surveys of sports organizations and to engage in education and lobbying.

In Ontario, the final draft of the Women and Sport policy was completed in 1989, following a consultation process undertaken by the Ministry of Culture and Recreation in 1987-88. CAAW&S representatives met with ministry officials both prior to and during the consultation process.

In Quebec, CAAW&S members established the Women and Sport Committee in association with the Ministère du Loisir, de la Chasse et de la Pêche in 1988, and hope to work on policy development. Their immediate plans include conducting surveys of sports organizations and network building (see also Women and leisure, p. xxx). In Nova Scotia, CAAW&S is represented on the Women and Sport Committee of Sport Nova Scotia, organized in 1988, which plans to focus on provincial policy development as well as to investigate the current situation for girls and women.

The 1988 conference of the Canadian Association for Health, Physical Education and Recreation (CAHPER) included several sessions on sex equity, which were reported in the March/April 1989 issue of the *CAHPER/ACSEPL Journal*, volume 55:2. CAHPER adopted five resolutions addressing equity issues in a broad range of areas, including policy, programming, research, funding, quality daily physical education and teacher education. One resolution, tabled by CAHPER, stated that homophobia should be recognized as an equity issue in physical education.

The 1987 conference of the Canadian Research Institute for the Advancement of Women/Institut canadien de recherches pour les femmes (CRIAW/ICREF) was on the theme of women and well-being. Many other feminist conferences are now making provision for sessions on sport and fitness-related topics. Futher evidence of growing feminist awareness of these issues can be seen in the 1987 issue of the annual *Everywoman's Almanac*, on the theme of women, physical fitness and sport, published by Women's Press, Toronto. It included interviews with 12 Canadian Women, aged 15 to 79, ranging from recreational to Olympic athletes.

The International Conference on Exercise Fitness and Health was held in Toronto in 1988. The final conference program listed only four women researchers out of a total of 62 speakers, but subsequent protests and lobbying by feminists, directed towards the all-male ICEFH organizing committee and one of the funding agencies, Fitness Canada (e.g. Hall, 1987) resulted in a well-attended special session titled "Gender Issues in Research on Exercise, Fitness and Health", with a panel of four feminist scholars from women's studies, medicine, sport sciences and social sciences. However, conference organizers' placement of a paper by J.C. Prior, "Exercise, fitness and reproductive health," on the 'disease' program rather than on the 'adaptations to physical activity' program was indicative of the traditional male sport sciences perspective that sees women as 'other' and female physiology as disease-prone (Naylor, 1988). (See Medical Practice and the Women's Health Movement, p. 139).

A further positive outcome of the conference was the generation of a non-sexist conference consensus statement, forming Chapter 1 of the published conference proceedings (Bouchard et al, 1990). The section of the statement titled "Physical Activity, Fitness and Reproductive Health" reflected the adaptive rather than the disease model. Furthermore, Prior's chapter on reproduction (Prior, 1990) included an incisive critique of the gender bias inherent in mainstream exercise physiology, exemplified by one conference organizer's designation of women as "a special interest group" whose perspective did not warrant consideration in the selection of speakers.

It is encouraging to see that the 1990 Commonwealth and International Conference on Physical Education, Sport, Health, Dance, Recreation and Leisure (Auckland, New Zealand) included sessions on women and physical activity in each day's program. However, males were still overrepresented in the exercise science section, and a proposed paper providing a feminist critique of the sport sciences (Lenskyj) was designated to the women and physical activity section despite its clear exercise science focus.

The advance program of the 1990 World Congress on Sport for All (Tampere, Finland) did not include any topics related to girls and women, and there was no evidence of explicit gender analysis in the preliminary list of papers. Similarly, the preliminary program for the 1990 International Symposium, Sport...The Third Millenium/Le troisième millenaire showed an underrepresentation of female speakers (9%), female members of the organizing committee (13%) and gender-related themes. Protests from concerned women and men resulted in some program changes that addressed these problems.

It is to be hoped that *all* conference organizers will eventually understand the urgent need for gender equity in the planning process, the numbers of presenters, and the conference themes and sub-themes. It is also important to recognize the need for men in the male-dominated sport sciences to be exposed to feminist critiques of the gender bias that invariably characterises the disease model.

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Government initiatives

Examples of local government initiatives include the 1976 Mayor's Task Force on the Status of Women (Toronto). The Recreation Committee identified sex discrimination in programs offered to girls and women by the Toronto Parks and Recreation Department and in the career opportunities open to female recreation instructors. Some of the committee's recommendations were implemented in the course of its investigations (Mayor's Task Force, 1976).

Partly in response to the Ontario Task Force on Equal Opportunity in Athletics, the Ontario Board of Education conducted a survey of athletic programs and participation (grades four to 12), the results of which were presented to Sopinka in 1983 (Quirouette, 1983). A Liaison Committee composed of representatives from the school boards and the city of Ottawa was subsequently established to study participation of males and females in physical activity. Surveys of female participation were also conducted by the Status of Women Committee, Toronto Board of Education, Halton Women in Physical Education (Halton County) and by Halton County Board of Education (Sopinka, 1984). In a related project, the Carleton Board of Education (Ottawa area) developed a female role-model program to promote girls' sporting participation (Spence, 1984).

After a two-year pilot proved successful, the City of Ottawa recently approved a program, Women and Sport, that provides sporting opportunities to currently inactive girls aged 13 to 17 years. The Liaison Subcommittee on Participation in Sport, with representatives from the City of Ottawa, Ottawa Boards of Education, CAAW&S and other organizations, was formed in 1982 to address problems of female participation (Phillips, 1986). *On the Move* is a resource kit describing the Women and Sport program and providing programmers' guidelines. It was produced jointly by the Women and Sport Program of the City of Ottawa, Fitness and Amateur Sport Women's Program and the Women in Sport

Leadership Program in 1989. Other local CAAW&S groups, in collaboration with municipal authorities, plan to adopt the Ottawa model, which has useful applications in a variety of recreational contexts.

At the federal level, the 1970 Royal Commission on the Status of Women represented an important preliminary step. The Report identified the trend for significantly fewer girls than boys to participate in school physical activity programs. Recommendation 78 stated that a research project should be undertaken to determine the reasons for girls' lower participation rates and to recommend remedial action (Royal Commission, 1970).

The Fitness and Amateur Sport (FAS) Women's Program was established in 1980 to develop and promote ways of involving women in sport and fitness activities. Its major activity areas include the National Association Contributions Program, which provides program opportunities for females in sport and fitness activities; Women in Sport and Fitness Leadership, a leadership training program in sport/fitness administration and coaching; liaison with other federal programs concerned with the status of women and with women's organizations; policy development related to women's sport and fitness activities; and education and research. Several national sport organizations now have women's committees whose members work with the FAS Women's Program on long-term planning related to the needs of girls and women, and most provincial/territorial departments of sport/recreation have a staff person who acts as a contact with the Women's Program.

Another federal organization, the Canadian Advisory Council on the Status of Women (CACSW) has a mandate to advise government and inform the public on issues of improving women's position in society. In 1982, CACSW published *Fair Ball: Towards Sex Equality in Canadian Sport* by M. Ann Hall and Dorothy Richardson, the first comprehensive Canadian source to address these issues (in French, *Franc-jeu.*) Following the release of *Fair Ball*, the CACSW made six recommendations aimed at removing existing inequities for women in sport. These included requirements that national sport governing bodies, lottery agencies and publicly funded sport organizations, as well as the Canadian Radio-Television and Telecommunications Commission, work towards equitable funding and representation of women in sport. It also recommended a stronger role for the FAS Women's Program in monitoring national sport organizations in this regard (Women and Sport in Canada, Fact Sheet #9).

Several provincial departments of sport/recreation have addressed issues of female participation in sport and sport leadership. The New Brunswick Department of Youth and Recreation sponsored a "Women in Recreation and Sport Symposium" in April 1985, addressing issues of programs, leadership and funding (Coffey, 1985). The Ontario Ministry of Tourism and Recreation recently established a Women's Initiative Program aimed at increasing women's numbers in sport and sport leadership and encouraging active women to increase their participation. For this purpose $40,000 is allocated annually to ten selected provincial sport organizations. The Ontario Best Ever Program, established in 1985, has as its goals the promotion of female participation at all levels and the increased visibility of women in sport, primarily through a role model program. As well, it aims at increasing opportunities for women in high performance sports. (See also Conferences and Organizations, p. 25).

In 1986, Sport Canada issued its Policy on Women in Sport/Politique de Sport Canada sur les femmes dans le sport. It states: "At all levels of the sport system, equal opportunities must exist for women and men to compete, coach, officiate or administer sport." Where gender-based inequities exist in resource allocation, the policy states that Sport Canada contributions will be made conditional on guarantees of more equitable distribution by national sports organizations.

The Sport Canada document presents 13 policy statements, dealing with the following areas: policy and program development; sport stratification; sport infrastructure; leadership development; high performance competition; participation development; resource allocations; liaison; research; education; promotion; advocacy; and monitoring and evaluation. Finally, the major activities to be initiated during the implementation of the policy are listed. The 13 issue areas identified in the policy constitute a useful model for sports associations and other groups planning policy and program initiatives to deal with the ongoing problem of sex inequality in sport.

Among other Fitness and Amateur Sport activities related to women, "Women with Disabilities — a national survey/La femme handicapée et

l'activité physique — une enquête nationale" was produced in 1987 and in 1986, three workshops on older women resulted in a report titled "Physical Activity and Aging: a focus on women."

The National Coaching School for Women/ Ecole nationale pour femmes entraîneurs, established in 1987 and supported by a partnership of national organizations, including the Coaching Association of Canada, the CIAU, the Canadian Colleges Athletic Association, CAAW&S, the Women in Sport Leadership program and Sport Canada, is a week-long women-only program for volleyball and basketball coaches based on a feminist model of sport.

In 1988, Fitness Canada established a Women's Program known as Women in Motion/Femmes en marche in order to promote equal opportunity for girls and women to participate in and benefit from all aspects of physical activity. It has produced *A Handbook for Physical Activity Programmers/Manuel pour la programmations des activités physiques* and a program kit for the fitness community, as well as "Guidelines for non-sexist language and visual materials/Un guide pour éviter le sexisme dans la langue parlée et écrite et dans les documents visuels" in a laminated format.

Fitness-related initiatives from Health and Welfare Canada include two 1989 reports on issues in prevention based on the 1985 Health Promotion Survey (see Physical activity over the life cycle, p. 103) and a 1988 discussion paper, *Promoting Healthy Weights/Le poids et la santé: document de travail* (see Physical activity and nutrition, p. 108; Eating disorders, p. 112). The Spring 1987 special issue of *Health Promotion/Promotion de la santé* dealt with women's health and women as caregivers in the home (see Medical Practice and the Women's Health Movement, p. 139).

Women's committees continue to grow and influence the programs and policies of national sports organizations; a listing of all the women involved is available from the CAAW&S national office, and women's newsletters have been developed by several women's committees (Palmason, 1987a, 1987c).

In 1988, the National Task Force on Young Females and Physical Activity produced a report of current participation patterns and strategies for change. (See Some effects of age on fitness, p. 129). The Task Force stated unequivocally that publicly funded agencies must be held accountable for demonstrating that there is equity in the programs and services provided (Dahlgren, 1988).

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Other Resources / Ressources additionnelles

National Coaching School for Women/École nationale pour femmes entraîneurs
CIAU/USIC
1600 James Naismith Drive
Gloucester, Ont. K1N 5B4
613-748-5619

Women and Sport Program, City of Ottawa. On the Move (resource kit). Fitness and Amateur Sport, 1989.

Women in Motion/Femmes en marche
Fitness Canada/Condition physique Canada
365 Laurier West
Ottawa, Ont. K1A 0X6
613-992-5482

Women in Sport and Fitness Leadership/Le Programme pour les femmes dans le leadership sportif
1600 James Naismith Drive
Gloucester, Ont. K1N 5B4
613-993-0900

Women's program/Programme pour les femmes
Fitness and Amateur Sport/Condition physique et Sport amateur
365 Laurier West
Ottawa, Ont. K1A 0X6
613-992-9231

History of Women in Sport in Canada

Writing women's history

In addition to the preceding guidelines for feminist research, there are special considerations for writing women's history from a feminist perspective. Historical research on women needs to encompass the broader context of women's culture, so that the values, institutions and relationships impinging on women's lives may be understood. As in social science research, it is important to view women as creators of their own culture and experience — as agents, rather than victims (Johansson, 1976: Lerner, 1979).

The version of women's history presented in official sources — government documents, reports of education departments and medical journals, for example — tends to display a male, Anglo-Saxon, middle-class bias. Therefore, for a more complete and accurate view of women's experience, these sources need to be considered in conjunction with materials generated by women themselves — letters, journals and oral histories, for example. In this way, it is possible to investigate women's resistance to the patriarchal attitudes and practices which constrained their lives, rather than assuming their automatic compliance, as is often implied in the official sources. An example in the sport context concerns menstruation: while it is important to identify prevailing medical views in the early decades of the century — specifically, the common advice to young women to curtail all physical activity during menstruation — it is necessary, as well, to investigate women's actual practices, which may be ascertained by interviewing women active in sport at that time.

Contemporary biographical accounts of well-known historical sporting figures — the "great women" approach — are valuable for their documentation of unknown areas of women's history. A major shortcoming, however, is their tendency to over-simplify or ignore social context. For example, the differential effects of social class and race/ethnicity of women's sporting careers are largely neglected. These accounts tend to individualize athletes' experiences and achievements, stressing their exceptional talent and effort, rather than explaining how they shaped, and were shaped by, attitudes and practices surrounding women's sport involvement during specific historical periods.

Periodization — the selection of cutoff dates for historical research — has traditionally been determined by events which had more historical significance to men's lives than to women's — Confederation or world wars, for example. In the study of women's history, this process should take other events into account as well: the invention of the safety bicycle, the granting of female suffrage and the passage of equal rights legislation are especially relevant to women's sporting history.

Women's sporting history

While numerous monographs, articles, and chapters in books document the history of American women's sport, physical activity and physical education, sources dealing with the experience of Canadian girls and women are more limited. In terms of general historical trends, however, American sources are of some relevance to the Canadian situation. The attitudes and practices of Ontario and English Quebec doctors and physical educators, for example, were strongly influenced

by their American counterparts in the north-eastern states, and there was considerable cross-fertilization across the border through professional literature and conferences in the early 1900s (Lenskyj, 1983a).

Canadian work in this area includes a history by Cochrane, Hoffman and Kincaid (1977), which deals with women's sport and its social-cultural context from the 17th century to the present, and Hall's thesis (1968), which takes a similar approach for the period up to World War I. Gurney (1979) documented the history of girls' sport and physical education in Ontario high schools from the early 1800s to the present. Parkes (1961) traced the history of women's athletics at the University of Toronto, while Jackson (1965) described historical developments in women's physical education at the university.

In this under-researched area, the writing of descriptive histories represents an essential first step, providing the basic material for historians to develop a more analytical approach. To date, however, Canadian women's experiences in sport and physical activity have not been fully investigated even at the level of descriptive or documentary history. Sport-related aspects of women's health and fitness have generally been neglected. The ways in which male power and privilege have been entrenched, historically, through male sporting practice, and the related links between sport and femininity/masculinity have not been fully examined. Finally, a feminist analysis has rarely been applied to any of these questions. As well as the incomplete understanding of sport-related issues, feminist scholarship in other disciplines — sociology, philosophy and psychology, for example — suffers when these gaps exist in women's history. Lenskyj's Ph.D. dissertation (1983a) and book (1986) attempt to address some of these issues, applying a feminist analysis to women's sport and physical activity over the past century, and examining the connections between sport, gender and sexuality.

The 1987 publication *From Fair Sex to Feminism: sport and the socialization of women in the industrial and post-industrial eras*, edited by J.A. Mangan and R. Park, is among the first English-language anthologies of its kind. It comprises critical articles on the history of women and sport in North America, the United Kingdom, Australia and New Zealand from the early 1800s to the present. One article (Lenskyj) deals with the Canadian experience. There is clearly a need for Canadian historians of women's history to fill in some of these gaps. Many women who participated in the "Golden Age" of women's sport in the 1920s and 1930s are now elderly and their stories may soon be lost. Oral histories of the women who were recreational rather than competitive athletes also need to be collected (Thomas, 1985).

With Canadian women's sporting history only fully documented for specific periods, regions, institutions and social groups, it is difficult to present an overview of historical developments over the past century without oversimplifying what were, in fact, complex processes mediated by social class, race/ethnicity and geography. There are several minority groups whose experience remains largely undocumented: girls and women of French Canadian, immigrant, native and rural origin, for example.

For some of these groups, it is possible to ascertain what programs of sport and physical activity were provided by schools, community centres and settlement houses through primary sources such as annual reports, although these usually present only the administrators' or physical educators' perspectives. For more recent historical periods, it is possible to complement these sources with information derived from autobiographies, memoirs and interviews. When this multi-faceted approach has been taken, it has often been seen that sex-differentiated programs of sport and physical activity served a social control function, contributing to the construction of femininity and female sexuality by permitting girls and women access only to those physical activities considered conducive to general and reproductive health, sex-appropriate personality development and heterosexual attractiveness. In practical terms, this meant that team sports — the "manly" sports — were only offered to females after they were modified to suit their allegedly weaker constitutions and temperaments, resulting in the development of "girls' rules" in games such as basketball and hockey. Furthermore, physical training and calisthenics — early versions of fitness and dance exercise classes — predominated in girls' physical education curricula and community recreation programs, while there were limited opportunities for females to participate in strength- and endurance-based sports, or to develop the positive personality traits referred to by promoters of male team sports as "character" (Gurney, 1979; Lenskyj, 1982b).

Historical developments in Canadian women's sport, however, have not been linear. In retrospect, it can be seen that there were more extensive opportunities for female participation in team sports such as basketball and softball and in non-traditional sports like track and field and distance swimming in the 1920s and early 1930s than in subsequent periods up until the 1970s, probably because of the more liberal social climate of the post-World War I period. In Ontario, for example, women's athletic clubs, sponsored by a variety of commercial enterprises, gave girls and women a range of opportunities to play in community leagues, often before large crowds of spectators, and to train for provincial, national and international competition. The effects of the Depression, World War II, and the post-World-War II era of the "feminine mystique," were reflected in the decrease in these kinds of sporting opportunities until the 1970s (Cochrane et al., 1977; Hall and Richardson, 1982).

Historical attitudes and practices

It has been argued that the history of women's sporting participation in North America over the past century has been a history of male control over female sexuality — specifically female reproductive function, sexual identity and presentation of self as female (Lenskyj, 1983a). At the turn of the century, the predominantly male medical profession, from whose ranks came a significant number of university athletic directors, was quick to respond to women's escalating participation in sport and physical activity, issuing warnings against cycling, running and the playing of so-called vigorous games — activities which, they claimed, were likely to disturb the menstrual cycle and cause damage to the reproductive organs. Sporting participation during the adolescent years, when the establishment of a regular menstrual cycle was seen as a major developmental task, and participation during the actual menstrual period, were contraindicated, according to most of the medical advice literature of the day (Ehrenreich and English, 1979).

On a similar theme, doctors in the early 1900s were joined by educators, clergymen and other guardians of female morality in warning against girls' and young women's participation in competitive sports which fostered "manly" qualities such as boldness, independence and initiative. Indiscriminate mingling of the sexes and girls' participation in unchaperoned sporting or recreational activities also caused concern, with the result that, by the late 1920s, competitive sport for girls and women in most American schools and universities, and to a lesser extent in some urban centres in Canada, was suspended. Women in sport leadership were in part responsible for these developments, although they had other rationales in addition to the health and morality concerns of their male counterparts. They argued, as well, that girls and women were subject to exploitation in competitive sport controlled by men, and the emphasis on competition and athletic excellence had the effect of limiting participation opportunities for the vast majority of females whose talents did not qualify them for high levels of competition (Young, 1982; Gurney, 1979; Lenskyj, 1983a).

By the 1930s and 1940s, additional concerns surfaced regarding female participation in so-called unfeminine sports. As the ideas of Freudian psychology concerning homosexuality and lesbianism became popularized, the sexual identity of girls and women who enjoyed traditionally male pursuits such as team sports, and of those whose leisure time was spent primarily in the company of other girls and women, was called into question (Lenskyj, 1986).

These homophobic attitudes and practices served to entrench the traditional distinctions between masculine and feminine sports, with those considered appropriate to females being individual rather than team sports and activities which promoted grace and agility rather than strength and muscular development. As early as the 1920s, innuendos concerning lesbianism were often directed at women who participated in traditionally masculine sports and at women who failed to meet the feminine stereotype because of their size, body type or muscular development. Attitudes and practices which upheld the notion of compulsory heterosexuality continued to prevail in the post-war period. By the 1970s, however, with the growing strength of the women's movement and the gay and lesbian rights movements, their power was, to some extent, dissipated (see Sport, Gender and Sexuality, p. 48).

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Chapter Two

Sport, Culture and Society

Sport, Culture and Society

Sociological research in this area has been predominantly functionalist in its approach. The focus has been on the operation of the sport system and its component parts, with athletes' experiences and perceptions examined only insofar as they are seen by the researcher to be clearly and directly related to that sport system. Quantitative research methods invariably accompany this approach, with subjective, non-measurable factors rarely considered. In his critique of this tradition in sport sociology, Whitson (1979) pointed out the need for research which assumes a critical approach, treating society as an evolving human construction with social patterns that are neither natural nor sacrosanct.

There are some exceptions to the functionalist approach, mainly Canadian and British sources — Gruneau (1983) and Hargreaves (1982), for example — which examine the relationship between sport and various forms of domination and class inequality in western capitalist societies. Most, however, continue to ignore gender as a social variable, as Bray (1984) pointed out in her critique of the emerging political economy tradition in Canadian sport sociology.

The literature in sport socialization shows clear functionalist tendencies, compartmentalizing and decontextualizing female experiences and rarely examining the important relationships between the social construction of femininity, physicality and sport in a gendered, male-dominated society. In the absence of more critical studies much of the literature included in the following sections is characterized by a functionalist approach and dependence on quantitative methods. Future research in this area would benefit greatly from the innovative approaches to both methodology and analysis taken in other fields: for example, in sociology of education, the work of Connell and his colleagues (1982) on Australian schools, families, and class and gender divisions or, in feminist cultural studies, Imray and Middleton's (1983) analysis of public/private boundaries and their differential effects on men and women, as illustrated by the male institution of cricket in a Yorkshire village.

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Dyer (1986) provides a thorough review of North American, British and Australian literature on girls' socialization into sport, as well as useful recommendations for policy and program changes.

Greendorfer (1987) has identified the serious sex-related biases in traditional methodologies and theoretical models used in socialization research. These frameworks have been developed almost exclusively from the experience of male athletes; female athletes and non-athletes of both sexes were rarely studied. These gender-biased social roles-social systems theories have been found to have low predictive value for female sport participation and non-participation.

Socialization of Girls and Women in Sport

Studies of the general socialization of girls into sport are reviewed here, while issues of sport and sex-roles are discussed in the section on Sport, Gender and Sexuality. The discussion begins by examining the most immediate context for female socialization, the family, and moves on to consider the school and community contexts.

Family

Both parents play an important part in female socialization into sport, but the nature of each parent's influence differs, as do the experiences and perceptions of boys and girls. Greendorfer's (1982, 1983) reviews of the literature show how sex-differentiated child-rearing practices — ranging from different ways of handling male and female infants to the provision of physically challenging toys and equipment for young children — all have important implications for early motor skill development and subsequent sport involvement. Thus, as Greendorfer points out, sex differences in motor performance can be better explained by social learning influences than by biological factors (see Motor performance, p. 127).

Several American studies (Lewko and Ewing, 1980; Sage, 1980; Weiss and Knoppers, 1982; McElroy, 1983; Berlage, 1983) and Canadian studies (Butt, 1980; Hall and Butcher, 1983; Butcher, 1983) investigated the socializing influences of mothers and fathers. Factors such as social class and life cycle stages were also considered in several studies. Butcher, Lewko and Ewing, MacIntosh (1978) and Baker (1981) investigated factors influencing non-participation as well as sport involvement, whereas the other studies focused solely on females who were active in school or community sport.

Contrary to the hypothesis concerning same-sex role models, fathers as well as mothers were found to exercise considerable influence on the level of girls' sport involvement during childhood, adolescence and early adulthood. Restrictions on the sport options available to the generation of women comprising the mothers of these subjects, compared to their father's sporting experience, probably accounted in part for the relative influence of each group. This trend, however, does not diminish mothers' significant influence on daughters' sporting involvement.

A majority of respondents to Butt's study considered their mothers' influence to outweigh that of their fathers. The respondents' privileged socio-economic background may have been a factor in their mothers' high level of encouragement. However, Butt found that the group of competitive swimmers, especially younger girls, attributed their entry into sport to their fathers' influence, a finding which suggested that the level of participation (recreational or competitive), the nature of the sport (individual or team) and other sport-specific factors need to be considered, as well as variables such as age and social class. Lewko and Ewing (1980), Weiss and Knoppers (1982) and Berlage (1983) investigated female athletes' perception of siblings' encouragement. There were conflicting findings concerning the relative impact of brothers and sisters. It seems likely, however, that male siblings and peers, like fathers, have had considerable influence in the past, while different patterns may be emerging in the 1980s. The encouragement of "significant others" (siblings, peers and others) was identified as a factor in adolescent girls' participation (Hall and Butcher, 1983) and one that was subject to variation over the life cycle (Weiss and Knoppers, 1982).

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McElroy, M.A. Parent-child relations and orientations toward sport. *Sex roles 9(10), 1983, 997-1004.* SIRC/CDS, SIRLS

Sabo, D.F.; Runfola, R. Jock: sports and male identity. Englewood Cliffs, N.J.: Prentice Hall, 1980. SIRC/CDS, SIRLS

Sage, G.H. Parental influence and socialization into sport for male and female intercollegiate athletes. *Journal of sport and social issues 4(2), 1980, 1-13.* SIRC/CDS, SIRLS

Silvennoinen, M. et al. Children's expectations on sport and self-rating related to their parents' background. *Year book 1983-1984, Res. Inst. of Ph. Cul & Heal. and Res. Unit for Sport & P.F. 46, 1985, 208-222.* SIRC/CDS, SIRLS

Washington, M.A.; Lehr, C.A. A sociological profile of participants in the 1983 NCAA women's golf championship. *Journal of sport and social issues 10 (1), 1986, 30-45.* SIRC/CDS, SIRLS

Weiss, M.R.; Knoppers, A. Influence of socializing agents on female collegiate volleyball players. *Journal of sport psychology 4(3), 1982, 267-279.* SIRC/CDS, SIRLS

Peers

Socializing influences on adult women's sporting activity have been investigated by Laberge (1983) and by the Canada Fitness Survey (Changing Times, 1984). For all age groups and roles of females included in the Canada Fitness Survey, the availability of a partner (sex unspecified) was ranked second of the changes likely to encourage more physical activity. This was particularly important for housewives and for the 10 to 19 year age group. The growth of women's community sports leagues may also be indicative of the impact of female peers (see Community Recreation, p. 66). Laberge (1983), however, reported that, for married working women, the influence of a husband who is active in sport is a decisive factor, and a single woman would be more likely to be active than a woman married to a nonparticipant. These findings provide further evidence of the priority girls and women place on relationships and connection; as well, the time constraints on women's leisure probably make the combining of sport and social experience an attractive option.

Recent Canadian studies of girls' and adolescents' friendships, interests and aspirations provide useful background material for investigations of female socialization into sport (Baker, 1985; Labour Canada, 1986; Kostash, 1987).

Kostash's (1987) study of adolescent subcultures and their impact on teenage girls' sexual identities is especially pertinent to feminist analyses of the links between sport, gender and sexuality. Similarly, in the US context, Eder and Parker (1987) examined adolescent peer-group culture and the cultural production and reproduction of gender evident in the activities of football and cheerleading. The qualitative methodology used in both of these studies — indepth interviews and participation observation — provides a much needed balance to the quantitative approach in socialization research.

There is considerable research evidence showing that most girls and women value the social experience — the friendship and fun of sport and physical activity — more than competition or achievement (Mathes and Battista, 1985; Biddle and Bailey, 1985; Knoppers, 1985; Tait and Dobash, 1986). As Knoppers (1985) points out, females may value success, but with reservations, because they realize that in traditional competitive sport settings, their achievement is usually at the expense of someone's failure. Citing Gilligan's (1982) work on female values, Knoppers suggested that girls and women may view winning as a threat to interpersonal relationships. Hence, it is important to take into account the influence of peers on female socialization into and within sport.

Studies of children's play and games provide useful insights into peer influence on child sport socialization processes. The existence of traditional sex-role differentiation in elementary school children's games is well documented: boys played competitive team games while girls' activities were more unstructured and imaginative (Lever, 1976, 1978; Best, 1983; Lindsay, 1984; Sleet, 1985; Evans, 1986; Watson and Wells, 1984; Kraft, 1989).

It is important to challenge the assumption common to many of these studies that girls need to be encouraged to emulate boys' play patterns. As Gilligan (1982) explained, Lever equated male development with child development, and upheld the male model because it provided continuity with (male) adult roles in the business world. This liberal approach fails to challenge traditional male practices in either sport or business.

Although physical activity is obviously important for all children, girls' preference for cooperative activities and the priority they place on maintaining friendships need not be sacrificed for the highly competitive and aggressive ethos that governs most boys' playground games. As some progressive physical educators point out, each group has something of value to learn from the other regarding values and attitudes to play and games, and the nature of sport may change in the process (Greendorfer, 1980; Hoferek, 1982; Humberstone, 1986; Hoppes, 1987).

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Watson, G.; Wells, M. Social motivation in children's games. *Australian journal of science and medicine in sport 16 (3), 1984, 20-31.*

Coaches and teacher/coaches

Butt (1980) studied girls' and women's perceptions of their coaches, concluding that emotional support was seen as the most important characteristic. Berlage (1983) found sex differences in college athletes' perceptions of coaches. Males ranked "winning" as the coach's first objective, while females ranked "playing well" first and "winning" a distant second. Coakley and Pacey's (1982) study reported that female intercollegiate athletes in NCAA schools expressed a preference for male coaches for individual sports, and female coaches for team sports. Their respondents ranked the quality of coaching staff the most important factor in their selection of a college or university.

Bain's (1978) observations of high school physical education teachers and coaches showed some sex differences in teaching styles: women engaged in more verbal behaviour, protected the privacy of their students and emphasized skill acquisition more than men. For most dimensions, however, there were no sex differences. In a small-scale study of coaching behaviour, Dubois (1981) found girls' soccer coaches (mostly women) provided more positive feedback and less technical instruction than boys' coaches (all male). On a related topic, studies of teacher behaviour in preschool play situations (Fagot, 1981) revealed differences based on both the sex of the teacher and the sex of the student. There are anecdotal accounts (e.g. Caulfield, 1984) which refer to the special rapport between female coaches and athletes. Research on preferred decision-making styles for coaches (Chelladurai and Arnott, 1985) showed that significantly more female than male high school athletes preferred coaches to adopt a participative style.

Whitaker and Molstad (1985) have developed a theoretical analysis of the female sport experience and the issue of male or female coaches. Citing evidence of the more intimate interaction and the greater scope for self disclosure and emotional support in women-only settings, they propose that the female athlete's values and concerns, particularly in a social context where female sporting participation is overtly or covertly discouraged, can best be shared and reinforced by having other female athletes as coaches.

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Fagot, B. Male and female teachers: do they treat boys and girls differently? *Sex roles 7 (3), 1981, 262-271.*

Higginson, D.C. The influence of socializing agents in the female sport-participation process. *Adolescence 20 (77), 1985, 73-82.* SIRC/CDS, SIRLS

Horne, T.; Carron, A.V. Compatibility in coach-athlete relationships. *Journal of sport psychology 7 (2), 1985, 137-149.* SIRC/CDS, SIRLS

Neil, G.I.; Kirby, S.L. Coaching styles and preferred leadership among rowers and paddlers. *Journal of sport behaviour 8(1), 1985, 3-17.* SIRC/CDS, SIRLS

Officer, S.A.; Rosenfeld, L.B. Self-disclosure to male and female coaches by female high school athletes. *Journal of sport psychology 7 (4), 1985, 360-370.* SIRC/CDS, SIRLS

Spence, J.A. Role model relationship. A support program for female participation in Carleton Board of Education Intermediate Physical Education Program. *OPHEA: Ontario Physical and Health Education Association 10 (2), 1984, 29-39.* SIRC/CDS

Spender, D.; Sarah, E. Learning to lose. London: Women's Press, 1980.

Vertinsky, P. In search of a gender dimension: an empirical investigation of teacher preferences for teaching strategies in physical education. *Journal of curriculum studies 16(4), 1984, 425-430.*

Whitaker, G.; Molstad, S. Male coach / female coach: a theoretical analysis of the female sport experience. *Journal of sport and social issues 9:2, 1985, 14-25.* SIRC/CDS, SIRLS

School Physical Education

Hall's (1976) and Greendorfer's (1980) findings suggested that the school was of minimal importance in girls' socialization into sport. Research by Lever (1976, 1978) and Best (1983) showed traditional sex-role differentiation in the kinds of play and games engaged in by elementary school children, with girls, for the most part, participating in spontaneous, imaginative, unstructured activities rather than rule-governed team games. Similarly, Diller and Houston (1983) discussed the hidden curriculum in the school which served to constrain girls' physical activity and freedom.

With recent attempts on the part of school boards, initiated in the American situation by federal government action (Title IX), to equalize opportunities for male and female students, it is possible that these patterns are in the process of changing (see Sex Equality in Sport, p. 19). However, recent studies confirm that the effects of school on girls' sporting involvement are still low. While female participation in community recreation programs was shown to remain relatively stable during adolescence, school PE participation, along with intramural and interschool activity, dropped dramatically in high school (Macintosh, 1980; Hall and Butcher, 1983; Quirouette, 1983; Ross et al., 1985).

An Ottawa study (Quirouette, 1983) documented the low numbers of female role models — that is, physical education teachers and teacher/coaches — instructing girls' and coed programs (grades 4 to 12), confirming that sport and physical education in the schools remain a predominantly male enterprise. Thus, it appears that programs to equalize opportunity, funding, etc. need to be accompanied by affirmative action initiatives to increase the numbers of female teachers/coaches. Spence (1984) described a successful project undertaken by the Carleton Board

of Education (Ottawa) to provide "role model relationships" for female participation in intermediate physical education. Strategies included fitness classes, basketball, volleyball and gymnastics competition in which female staff, mothers and senior female athletes were invited to participate.

Studies of female high school students' attitudes to school sport and physical education programs in the USA (Sabock and Seygal, 1986), UK (Cockerill and Hardy, 1987) and Canada (Baker, 1981; Earl and Stennett, 1987; Crossman, 1988) show diverse responses. For example, there was higher female participation in unorganized than in organized sport; individual activities were more popular than team sports; and participants valued sport more highly than non-participants. Many girls blamed their own lack of ability and the subsequent threat to their self esteem for their dislike of gymnastics and track events, rather than recognizing that these were highly demanding activities structured in a way that might well demoralise all but the most skilled athlete.

As Cockerill and Hardy (1987) point out, it is important for high school physical education programs to avoid alienating female students. They suggest that schools offer girls a wider range of activities that have the potential to develop into lifelong leisure pursuits; more individualized programs; an option system throughout high school; and more learner-centredness in teaching methods.

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Baker, P. Physical and health education: subject selection and student attitudes. Scarborough, Ont.: Scarborough Board of Education, 1981.

Best, R. We've all got scars: what boys and girls learn in elementary school. Bloomington: Indiana University Press, 1983.

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Cooper, A. Gender and primary school physical education. *British journal of physical education 17 (4), 1986, 148.* SIRC/CDS, SIRLS

Crossman, J. Organized and unorganized sport participation by high school girls in Northwestern Ontario: a case study. *CAHPER journal 54 (5), 1988, 11-15.* SIRC/CDS, SIRLS

Diller, A; Houston, B. Women's physical education: a gender-sensitive perspective. *In, Postow, B.C., ed. Women, Philosophy and Sport. Metuchen, N.J.: Scarecrow Press, 1983.* SIRLS

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Dyer, K.F. Girls' physical education and self-esteem: a review of research, resources and strategies. Canberra: Report to the Commonwealth Schools Commission, 1986.

Earl, L.M.; Stennett, R.G. Student attitudes toward physical and health education in secondary schools in Ontario. *CAHPER/ journal 53 (4), 1987, 4-11.* SIRC/CDS, SIRLS

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Gregson, J.F.; Colley, A. Concomitants of sport participation in male and female adolescents. *International journal of sport psychology 17 (1), 1986, 10-22.* SIRC/CDS, SIRLS

Griffin, P.S. Girls' and boys' participation styles in middle school physical education team sport classes: a description and practical applications. *Physical educator 42 (1), 1985, 3-8.* SIRC/CDS, SIRLS

Griffin, P.S. Teachers' perceptions of and responses to sex equity problems in a middle school physical education program. *Research quarterly 56 (2), 1985, 103-110.* SIRC/CDS, SIRLS

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Hoppes, S. Playing together - values and arrangements of coed sports. *Journal of physical education, recreation & dance 58 (8), 1987, 65-67.* SIRC/CDS, SIRLS

Leaman, O. Physical education and sex differentiation. *British journal of physical education 17 (4), 1986, 123-124.* SIRC/CDS, SIRLS

Lever, J. Sex differences in games children play. *Social problems 23(4), 1976, 479-488.* SIRC/CDS

Macintosh, D. Factors influencing the election of secondary school physical education and their relationship to benefits accruing from such programs. Kingston: Queen's University, 1978.

Quirouette, P. Ottawa Board of Education athletic survey. Ottawa: Ottawa Board of Education, 1983.

Ross, J. et al. After physical education... physical activity outside of school physical education programs. *Journal of physical education, recreation and dance 56 (1), 1985, 77-81.* SIRC/CDS, SIRLS

Sabock, R.J.; Seygal, L. Athletic programs: female students discuss values of high school athletic participation. *Interscholastic athletic administration 12 (3), 1986, 13-15.* SIRC/CDS

Spence, J. Role model relationship. *Ontario Physical and Health Education Association 10 (2), 1984, 29-39.* SIRC/CDS

Varstala, V. et al. An observational study of teaching team games in school physical education lessons. Rome: International conference on teaching team sports, 1983.

Media

There is considerable literature on the effects of general TV viewing on children's values, attitudes and behaviour. McMillan and Moriarty (1980) investigated the effects of TV sport programs on young adolescents (Canada and United States), identifying sex differences in favourite types of shows. For males, sport, comedy and adventure were the top three choices, while females preferred comedy, mystery and drama.

An American opinion survey (Miller Lite Report, 1983) showed that 35% of women considered there was too much sport programming on TV, compared to 24% of men. Over half of the respondents (both sexes) believed that men's and women's sports each received adequate TV and newspaper coverage. Of the college athletes in Berlage's (1983) study, about 60% of males read the sport pages daily and watched TV sport often, compared to 32% and 49% of women respectively. It may be concluded that the professional male sports which dominate the media have limited significance for women, even for sportswomen (see Sport, Gender and the Media, p. 58).

Most fictitious images of girls and women in literature, television and film perpetuate sex-stereotypical assumptions regarding female participation in sport and physical activity. (See also Media portrayal of women's sport, p. 60). One notable exception is the juvenile fiction written by R.R. Knudson, in which the female hero, Zan, is a highly competitive athlete who, despite the odds, succeeds in traditionally male sports: football, basketball, and marathon running, Griffin (1985) provides a feminist critique of Knudson's work and a listing of her novels.

Berlage, G. Differences in male and female college athletes' commitment to sports and its implications. *North American Society for the Sociology of Sport Conference, unpublished paper, 1983, 1-15.* SIRLS

Griffin, P.S. R.R. Knudson's sport fiction: a feminist critique. *Arete 3 (1), 1985, 3-10.* SIRC/CDS, SIRLS

Hollands, R.G. Images of women in Canadian sports fiction. *In, Theberge, N. and Donnelly, P. eds., Sport and the sociological imagination. Fort Worth, Tex.: Texas Christian University Press, 1984, p. 40-56.* SIRC/CDS, SIRLS

McMillan, P.; Moriarty, D. Comparative Canadian-American study on the effect of television athletics and organized sport on children and youth. Arlington, Va.: ERIC, 1980. SIRLS, SIRC/CDS

The Miller Lite report on American attitudes toward sports. Milwaukee, Wis.: Miller Brewing Company 1983. SIRC/CDS, SIRLS

Oriard, M. Jenifer Levin's Water dancer and the feminist sport novel. *Unpublished paper, 1986.* SIRLS

Socialization within sport

Cantelon (1981) investigated the socialization processes *within* sport from the perspective of the young athlete as labourer. The training regimes of female gymnasts attending Canada's first sports school (Toronto) were examined, in addition to those of child athletes from USSR and West Germany. Gruneau discussed philosophical and moral arguments used by parents and coaches, and sometimes by the athletes themselves, to justify child-labour in sport: training promotes self-discipline, hard work, determination, goal-oriented behaviour, etc. It should be noted that, while sport in general is a male preserve, the individual sports of gymnastics and figure skating, where child athletes predominate, are also sports where girls outnumber boys.

Socialization within women's sport has rarely been studied. In a rare ethnographic study in this area, Prendergast (1978) observed women's informal games of stoolball (a game similar to cricket) in an English village. She described the work-related function of team meetings in recruiting new farm labourers, as well as the socializing functions related to sharing information and gossip and developing group solidarity.

Sherlock (1983) brought a feminist perspective to her discussion of the female physical educator as "cultural product" (socialization into sport/physical education) and "cultural producer" (socialization within sport/physical education). Observing the response of female students in physical education colleges (Britain) to feminism, she concluded that these young women working in a male-dominated domain tended to reproduce the cultural conditions which oppressed them. They were concerned with appearing feminine, disassociating themselves from lesbianism and maintaining a self-image as physical educators, rather than as sportswomen (see Sport, Gender and Sexuality, p. 48).

Addelson, K.P. Equality and competition: can sports make a woman of a girl? *In, Postow, B.C. ed., Women, philosophy, and sport. Metuchen, N.J.: Scarecrow Press, 1983, p. 133-161.* SIRC/CDS, SIRLS

Cantelon, H. High performance sport and the child athlete: learning to labour. *In, Ingham, A.G. and Broom, E.F. eds., Career Patterns and Career Contingencies in Sport. Vancouver: University of British Columbia, 1981, p. 258-286.* SIRC/CDS, SIRLS

Sherlock, J. The female physical educator in Britain as cultural product and as cultural producer. *In, International Committee for the Sociology of Sport, 8th Symposium. Paris, 1983, p. 583-588.* SIRLS

Varpalotai, A. The hidden curriculum in leisure - an analysis of a girls sport subculture. *Women's studies international forum 10 (4), 1987, 411-422.* SIRC/CDS, SIRLS

Varpalotai, A. Sport, gender and the hidden curriculum in leisure: a case study of adolescent girls. Ph.D. dissertation, University of Toronto, 1987.

Sport and deviance

Stevenson's (1975) article addressed the claim that sport serves as a socializing agent by "building character" and promoting moral and social development. His review of the literature showed confusing and contradictory findings, as well as underlying methodological and theoretical shortcomings. Nevertheless, the view persisted that sport served as a deterrent to deviance among youth, especially working class males. A 1983 review of the literature (Segrave) noted that female delinquents have rarely been the subjects of this line of research; some studies found that female athletes exhibited less delinquent behaviour than female non-athletes, but most of these data were gathered in 1969-70 (Buhrman, 1977; Buhrman and Bratton, 1978). A recent American study (Segrave and Hastad, 1984) found the same negative association between athletic participation and delinquency for both sexes, but noted a differential response between females and males in their perception in two areas — "future strain" and "limited opportunities" — probably due to the richer educational and career prospects in sport for males in comparison to females.

McMillan and Moriarty (1980) investigated adolescents' views of what they "liked best" about sport. There were no sex differences in the first three choices (excitement, competition, exercise) but the fourth choice for females was friendship, and for males, aggression. In view of the predominance of American research in sport psychology/social psychology, it is also important to note that this study identified significant differences between Canadian and American youth related to violence and cheating in sport and to TV programs depicting aggression: Americans were more tolerant of these than Canadians.

Buhrman, H.G.; Bratton, R.D. Athletic participation and deviant behavior of high school girls in Alberta. *Review of sport & leisure 3(2), 1978, 25-41*. SIRC/CDS, SIRLS

Buhrman, H.G. Athletics and deviancy: an examination of the relationship between athletic participation and deviant behavior of high school girls. *Review of sport and leisure 2, 1977, 17-25*. SIRC/CDS, SIRLS

Hastad, D.N. et al. Youth sport participation and deviant behavior. *Sociology of sport journal 1(4), 1984, 366-373*. SIRC/CDS, SIRLS

McMillan, P.; Moriarty, D. Comparative Canadian-American study on the effect of television athletics and organized sport on children and youth. Arlington, Va.: ERIC, 1980. SIRLS, SIRC/CDS

Segrave, J.O.; Hastad, D.N. Interscholastic athletic participation and delinquent behavior: an empirical assessment of relevant variables. *Sociology of sport journal 1(2), 1984, 117-137*. SIRC/CDS

Segrave, J.O. Sport and juvenile delinquency. *Exercise and sport sciences reviews 11, 1983, 181-209*. SIRC/CDS, SIRLS

Stevenson, C.L. Socialization effects of participation in sport: a critical review of the research. *Research quarterly 46(3), 1975, 287-301*. SIRC/CDS, SIRLS

Sport, Gender and Sexuality

Sex-role research

A central concept in sex-role research concerns the individuals' experience of role conflict, brought about when the expectations and demands of her/his multiple roles are incompatible. One of the observed mechanisms for coping with role conflict is to abandon one or more of the problematic roles. Most of the social psychological research on female athletes during the 1970s and early 1980s was based on the unquestioned assumption of incompatibility between the role of woman and the role of athlete. Specifically, the learned characteristics of traditional femininity were viewed as incompatible with athletic competence; it was rarely acknowledged that femininity was socially constructed, historically specific and mediated by social class and race/ethnicity.

This is not to deny that female athletes, especially those who were pioneers in nontraditional sports, encountered discriminatory attitudes and practices which discouraged high levels of psychological functioning. The notion of role conflict, however, placed the problem and the solutions within the individual woman, rather than in the

material conditions of her daily struggle in a sport system that operated on patriarchal principles and served male interests.

Much of the sex-role research in the 1970s treated role conflict in female athletes as a given, and proceeded to look for its manifestations and its relationship to masculine/feminine personality traits and masculine/feminine sports. Methodology has been an important consideration in sex-role research. Whereas earlier personality scales were based on the traditional, bipolar concept of masculinity and femininity, later versions, namely the Personal Attributes Questionnaire and the Bem Sex-Role Inventory, treated masculine and feminine as traits found more in one sex than the other, but socially desirable in both sexes. These scales produced the classifications of masculine, feminine and androgynous or undifferentiated.

In her 1981 critique of this research, Hall showed that, contrary to early assumptions, there was evidence of a high level of psychological adjustment among female athletes, a finding which appeared to be associated with the incidence of androgynous personalities — exhibiting both masculine and feminine traits (also termed instrumental and expressive, or agentic and communal) — among groups of high-achieving women, in whose number were included sportswomen. In both sport-related studies and other branches of personality research, it has generally been found that androgyny is associated with high self-esteem. Hall pointed out, however, that the reification of sex-roles, the perpetuation of stereotypes associated with female athletes and the emphasis on normative expectations continues to be entrenched by this entire line of research, whether the label applied is masculine or feminine or androgynous (Hall, 1981).

In the nine years since Hall's critique, studies of this kind have continued to be published, with androgyny generally replacing masculinity and femininity as the new conceptualization to be applied to women in sport. While this development may be seen as progressive in comparison to the earlier preoccupation with role conflict and so-called masculine personality traits of women in sport, some of the same assumptions continue to operate: that feminine traits are incompatible with success in sport, and, by implication, that a "real woman" cannot be an athlete or a sport administrator. In a recent review of this literature, it was suggested that the next advance in this regard might be the notion of gender role transcendence, with the terms masculine and feminine abandoned altogether (Birrell, 1983).

Regardless of psychologists' apparent acceptance of androgyny as representing a new and improved standard of mental health, this is not necessarily true of decision-makers in education or sport administration, many of whom continue to hold traditional views on questions of sex-role identify. These attitudes and practices have the effect of perpetuating the marginalization of women in sport, while men continue to hold the majority of jobs in coaching, sport administration and university physical education departments (see Careers in Sport, p. 75).

Social class and race/ethnicity have important implications for tolerance of sex-role flexibility. Many parents and teachers punish, rather than reward, girls who depart from the feminine stereotype through their participation in certain sports. Furthermore, for many, the visible signs of an androgynous personality — self-confidence, assertiveness, determination — are inevitably associated with a threatening image of femaleness, characterized by labels like "pushy," "man-hating" or "lesbian."

Sport and sexuality

Since the stereotype of "female athlete" and "lesbian" share so-called masculine traits such as aggression and independence, the association between sport and lesbianism has frequently been made. The issue of male power is central to this association. Regardless of sexual preference, women who reject the traditional feminine role in their careers as athletes, coaches or sport administrators, or in any other nontraditional pursuit, pose a threat to existing power relations between the sexes. For this reason, these women are the frequent targets of labels intended to devalue or dismiss their successes by calling their sexuality into question (Smith, 1981; Lenskyj, 1985).

Homophobia directed at women in sport has had the unfortunate effect of making many heterosexual women feel obligated to prove their femininity and heterosexuality at every opportunity in order to disassociate themselves from both the lesbian label and the lesbians in sport. Their response may also include rejecting feminist analyses of sex discrimination (Sherlock, 1983). Lesbian athletes in some Canadian cities have organized recreational clubs and leagues where their sexual identity is positively accepted (Kidd, 1983a; Baxter, 1983). At the level of advocacy and

political action, however, solidarity between lesbian and heterosexual women in sport is crucial. This point was emphasized recently at the 1985 annual meeting of the Canadian Association for the Advancement of Women and Sport (Lenskyj, 1985; Krebs, 1984).

Homophobia continues to be an issue of discussion and concern within CAAW&S and other feminist organizations. In recent moves in mainstream sport and physical education circles, the issue of homophobia was discussed at the annual conference of AAHPERD (1987), CAHPER (1988) and the North American Society for the Sociology of Sport (1989) (Sabo, 1987; Griffin, 1989; Lenskyj, 1989). However, given the vulnerable position of women, especially lesbians, in university physical education departments, many women do not feel safe discussing personal experiences of homophobic harassment at such public forums. Hence there is a need for these women to get support from feminist activists outside of sport, in order to deal with gender and sexuality issues in sport at the local level.

Increased female participation in sport and physical activity over the past decade may suggest that homophobic labels and innuendos have lost some of their efficacy. Institutionalized "compulsory heterosexuality", as Rich termed it, still serves to constrain women's sporting participation: sports continue to be classified "feminine" or "unfeminine", depending upon their function in enhancing heterosexual attractiveness (Rich, 1980). Indicative of this trend is the continued proliferation of dance exercise programs, symbolized by the lean, smoothly muscled female figure clad in designer fashion. In this enterprise, both the fitness and the fashion industries are collaborating in the exploitation of women and the entrenchment of compulsory heterosexuality (Kidd, 1983; Salmon, 1983; Lenskyj, 1984). Even in the nontraditional sport of body building, heterosexual attractiveness — characterized by muscles that are shapely and symmetrical, not bulky and rippled — has been identified as a criterion for judging what is obstensibly a competition in muscular development, not "femininity" (Gaines, 1983).

In an alternative approach to the problem of homophobia in sport, lesbians and gay men established an international Gay Games and Cultural Festival, held in San Francisco in 1982 and 1986, and Vancouver in 1990 (Muzin, 1989). As well as their predominantly (but not exclusively) lesbian and gay focus, the Gay Games and Cultural Festival promote an alternative model of participation based on the principle of inclusion. Unlike most other contemporary international sporting events, there are no elimination or qualifying rounds, and the emphasis is on participation by all. However, the Gay Games organizers have issued a position paper in support of the South African sports boycott, because of their commitment to fight racism in sport (Metropolitan Vancouver Athletic and Arts Society, 1988).

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Sexual harassment and sexual abuse

Girls and women are frequent targets of sexual harassment and sexual abuse in sport-related settings. Female sports journalists have experienced verbal abuse and actual physical assault during locker room interviews with male athletes (Lannin, 1987). Female cheerleaders and other young women on university campuses are frequent targets of male sexual assault, the perpetrators being members of football or basketball teams or men's fraternities (Green, 1985; Farrell, 1986).

Young female athletes are especially vulnerable to abuse at the hands of male coaches. It has been shown that men who have authority and power over women and children are frequent perpetrators of physical and sexual abuse (Russell, 1984) and there is some evidence that coaches are also to be found in this category (Appenzeller and Ross, 1986). It has been reported that girls and women with disabilities are more likely to be targets of physical and sexual abuse than able-bodied females (Doucette, 1987). This constitutes yet another barrier to disabled females' access to sport and physical activities.

One kind of abuse that has been documented is psychological: control of female athletes' weight and eating habits, achieved by publicly humiliating girls and women who are, in the coach's opinion, overweight. Such practices have been identified as factors in the escalating rates of eating disorders among female athletes, and recent reports urge coaches to pay attention to

this serious problem (Overdorf, 1987; Rosen and Hough, 1988). (See Eating disorders among female athletes, p. 112).

Kidd and Eberts (1982) have documented some of the ways in which competitive athletes lose certain freedoms as a condition of their contracts with sports governing bodies; however, the specific ways in which male coaches may abuse their authority in relation to female athletes need to be more fully investigated. Harassment of lesbian athletes, coaches and administrators constitutes a form of sexual harassment that is only now becoming a topic of public discussion. Human rights legislation provides one possible means of protection, but the publicity surrounding litigation and the difficulty of proving the charges are obvious deterrents. (See Canadian human rights legislation, p. 19, Sport, gender and sexuality, p. 48).

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Social Class, Race and Ethnicity

Effects of social class

Social class factors produce particular patterns in female sport, as they do in male sport. However, the question of female equivalents to the working class youth who achieves upward mobility as a jockey or boxer, or the upper class male who enhances his status as an equestrian or yachtsman, has not been fully investigated. Metheny made one of the earliest attempts to identify class differences in the classification of certain sports as feminine. She proposed, for example, that an activity involving throwing a heavy object like a bowling ball, while generally considered masculine, was also seen as appropriate for working class females. With changing attitudes and practices concerning women and sport, her classification needs revision, but the principle that social class mediates the acceptability of sports for women still holds true (Metheny, 1963).

In addition to the relationship between social class and sex-appropriate sport, the material conditions of women's lives play an important part in determining the sports and physical activities, if any, in which they participate. Sports clothing, equipment, instruction, facilities rental, travel and child care may be beyond the financial resources of many women, who, as a group, earn approximately 60% of men's earnings, with large numbers engaged in unpaid domestic labour. These factors account in part for the popularity of cheap or free fitness classes conducted in community recreation centres, where child care is often provided, and where equipment and travel costs are minimal.

The concept of women's leisure time is complicated in the case of those whose work is carried out exclusively in the home, where demarcations between "work" and "leisure" are virtually invisible. For all women, however, social class affects both the amount of time available for sport and physical activity and the quality of that time. The ability to pay for child care and housecleaning services, for example, bears a direct relationship to the number of leisure hours available. Not surprisingly, lack of time was the prime factor identified by Canadian women as an obstacle to increased physical activity (Changing Times, 1984).

Attitudes of family members towards women's leisure, sport and physical activity — also mediated by social class — have implications for their sporting participation. A view of appropriate "wifely" or "motherly" behaviour as selfless and passive may have the effect of limiting women's leisure activities to TV viewing or bingo. Values assigned to regular physical activity for the purpose of body maintenance and mental well-being are affected by both social class and sex (Laberge et al., 1985). Studies of runners, for example, show an over-representation of highly educated, upper-income males (Brown and Curtis, 1984; McTeer, 1983) (see Women and leisure, p. 72).

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Race/ethnicity

Research on the relationship between race/ethnicity and female sporting participation has been conducted almost exclusively in the U.S. The abundant American research on Blacks in sport has limited relevance for the Canadian situation, since Canada does not have the same highly developed intercollegiate programs serving to prepare athletes for careers in sport (Lumpkin, 1981; Hanks, 1979; Murphy, 1980). Furthermore, Black women and women of colour in Canada do not share precisely the same historical background and cultural traditions as their American counterparts, and thus American findings on these groups cannot necessarily be generalized to Canada.

Race and ethnicity are important factors in the life chances of Canadian women, and racial discrimination no doubt contributes to the underrepresentation of minority women as athletes, coaches and administrators. The presence or absence of role models, too, has implications for minority girls' sporting participation. In track and field, for example, aspiring athletes can see examples of successful Black women who are world class runners, whereas there are few role models for minority girls in sports such as skiing and tennis. Effects of social class and race/ethnicity are often interrelated, exacerbating the problems of working class girls' access to sports in which expenses are high.

In a comparison of American and Canadian patterns of integrating minorities into Olympic sport, Kjeldsen (1984) observed that French Canadian athletes were integrated into most sports, both as athletes and coaches/officials, whereas American Blacks were concentrated in some sports and missing from others. There was a trend towards lower levels of minority integration in sports which were open to men and women and/or sports where teams trained together: 1980 figures showed proportionately fewer French Canadian athletes in track and field and swimming — sports in which both sexes participate — than in the male sports of weight-lifting and ice hockey.

More rigid sex-role expectations which operate within certain ethnic or cultural communities may serve to limit girls' and women's sporting participation. For example, Southern European parents may be concerned about their daughters' participation in swimming, camping trips or school excursions, fearing social and sexual impropriety as a result of inadequate supervision and chaperonage. Problems of clothing which satisfies demands of physical activity may arise among Muslim girls and women. Recent projects conducted in England addressed some of these problems by developing a recreation program tailored specifically for Muslim mothers with young children (Dixey, 1981, 1982).

There are cultural as well as sex differences in approaches to competitiveness, achievement and winning. Duda's studies of Navaho Indian and Mexican-American adolescents investigated these differences (Duda, 1981, 1982). She concluded that athletes' perceptions of success and failure are situational and culturally dependent. Navaho Indian adolescents, for example, were process- rather than product-oriented in their conceptions of athletic success, identifying ability, practice and effort as central components. Duda pointed to the ethnocentric nature of present approaches to achievement motivation in sport, as well as noting that the goals of female athletes may not correspond with (male) coaches' assumptions concerning the primacy of winning.

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Knoppers, A. et al. Athletic heroes and heroines: a cross ethnic study of American teenagers. *Comparative physical education and sport 7 (2), 1985, 14-25.* SIRLS

Knoppers, A. et al. Winning is not the only thing. *Sociology of sport journal 3 (1), 1986, 43-56.* SIRC/CDS, SIRLS

Lewis, T. Ethnic influences on girls' PE. *British journal of physical education 10(5), 1979, 132.* SIRC/CDS

Lumpkin, A. Blacks and females striving for acceptance. *North American Society for Sport History, Annual conference, unpublished paper, 1981, 1-17.* SIRLS

Metropolitan Vancouver Athletic and Arts Society. The Gay Games and the South African sports boycott. Vancouver, 1988.

Paraschak, V.A.; Scott, H.A. Games Northerners play - the Arctic winter games and the Northern games - reflections of one or several Canada Norths? *In, Proceedings and newsletter - North American Society for Sport History. Minneapolis, Minn.: University of Minnesota, 1980.* SIRC/CDS

Sabo, D. et al. Minorities in sport. New York: Women's Sport Foundation, 1989. SIRLS

Sport, Gender and the Media

Sex stereotyping in advertising

A survey of empirical research on sex stereotyping made in 1978 reported several findings of relevance to female sporting participation. The survey, although Canadian, also covered American television and print media advertising, which obviously has a significant impact on Canadians (Courtney and Whipple, 1978).

1. Women are portrayed primarily as housewives and mothers, while males are shown in a variety of roles. The emphasis on home-oriented activities results in an absence of alternative role models, specifically women who work outside the home, women who engage in sporting or recreational activities and women with careers in sport.

2. Girls are shown as more passive than boys. This is a trait that is not conducive to enjoyment of, or success in, sport and physical activity. Girls' early socialization into passivity has the effect of making many activities, especially contact sports, appear unfeminine and therefore unacceptable.

3. Active women engaged in sports are not shown. Thus, role models are lacking, especially for young girls. This pattern has changed somewhat since the 1978 survey, but the women shown in current advertising still tend to be engaged in traditionally feminine sports. The new trend towards using women clad in the dance exercise uniform — leotards and tights — to sell products ranging from diet food to stereos is not a particularly progressive step, since an image of heterosexual attractiveness, rather than an image of a strong, active woman, predominates.

4. As housewives, women are shown as isolated from other women. This image does not acknowledge collective action on the part of women, whether this takes the form of participating in a team sport, organizing cooperative child care for women interested in running, or working in an advocacy group dealing with sport and equality issues.

5. In portrayals of sexuality, women are more likely than men to be shown in decorative or non-functional roles. If passive heterosexual attractiveness is portrayed as the only acceptable expression of female sexuality, there is little validation in advertising for alternative sexual images based on strength, assertiveness and independence, as might be more appropriate to physically active women, nor is there room for alternative forms of sexual expression.

6. Liberation (feminism) is belittled or used as a way of showing dominant women and stupid men. This distortion has no doubt contributed to the public image of feminists as manhating, or not "real women." There are clear implications for the feminists in sport leadership and advocacy whose work brings them up against men, and perhaps other women, who hold these kinds of misconceptions and prejudices concerning feminism. It is especially ironic, and unfortunate, that a leading sponsor of women's professional tennis, Virginia Slims, is one of the worst offenders in its trivializing of feminism through its slogan, "You've come a long way, baby", which is both inaccurate and degrading (Lenskyj, 1984; Hilliard, 1983).

In September 1989 CAAWS/ACAFS conducted a review of major Canadian newspapers for their coverage of women's sports. The results, published in the November *CAAWS/ACAFS Action Bulletin*, showed that coverage was inversely related to numbers of readers, with papers serving small populations providing more information on women's sports, which, even in these papers, comprised only a small percentage of the total.

Anderson, D. Women's magazines in the 1970s. *Canadian woman studies 2 (2), 1980, 15-16.*

Burstyn, V. Violence, masculinity and profit: a look at the mass entertainment industry. *Canadian woman studies 4 (4), 1983, 25-28.*

Canadian Radio-Television and Telecommunications Commission. Sex-role stereotyping in broadcast media: report on industry self-regulation. Ottawa: CRTC, 1986.

Cole, H. Fitness or fantasy? *Hysteria 4 (4), 1986, 24.*

Courtney, A.; Whipple, T. Canadian perspectives on sex stereotyping in advertising. Stéréotypes fondés sur le sexe dans la publicité, perspective canadienne. Ottawa: Can. Advisory Council on the Status of Women/Conseil consultatif canadien sur la situation de la femme, 1978.

Jeffrey, L. Feminism in the media: the 3-minute workout. *Broadside 8 (6), 1987, 8-9.*

King, L. Broadcasting policy for Canadian women. Vancouver: MediaWatch, 1987.

Lenskyj, H. Women in Sport in the 70s and 80s. Unpublished paper. SIRC/CDS

Masse, M.; Rosemblum, K. Male and female created they them: the depiction of gender in the advertising of traditional women's and men's magazines. *Women's studies international forum 11 (2), 1988, 127-144.*

McGormdn, S. This ad offends me. Windsor, Ont., 1984.

MediaWatch. Response to the CRTC report on self-regulation by the broadcasting and advertising industries. Vancouver: MediaWatch, 1986.

MediaWatch. National Watch on Images of Women in the Media Inc. Sex role stereotyping: a content analysis of radio and television programs and advertisements. Vancouver: MediaWatch, 1985.

MediaWatch/Evaluation-médias. Adjusting the image: women and Canadian broadcasting. Ajustons l'image: les femmes et la radiodiffusion canadienne. Vancouver: MediaWatch, 1987.

Parkinson, L. Women and the media: the broken promise of equality. Vancouver: MediaWatch, 1987.

Thibault, A. L'image de la femme à la télévision. *Canadian woman studies/Les cahiers de la femme 2 (2), 1980, 79.*

Wallace, L. CRTC policy statement on sex-role stereotyping: how should women respond? Vancouver: MediaWatch, 1987.

Other Resources / Ressources additionnelles

Advertising Standards Council
1240 Bay St.
Toronto, Ontario M5R 2A7

Canadian Coalition Against Media Pornography
PO Box 1975, Station B
Ottawa, Ontario K1P 5R1

Media Report to Women
Communication Research Associates, Inc.
10606 Mantz Road
Silver Spring, Maryland 10903-1228, USA

MediaWatch/Evaluation-médias
#250-1820 Fir Street
Vancouver, B.C. V6K 3B1
604-731-0457

MediaWatch. Images of women/ Sage/femmes comme une image (video). 1983/4.

Media portrayal of women's sport

Whannel (1984), Lareau (1983), and Sloan and Kramer (1985) identified the nationalism and sexism which characterizes most coverage of international sport events. Comments on drug use, factory-farming methods of rearing athletes and the so-called masculine physique of female swimmers or shot-putters are routinely made in reference to athletes from the GDR, USSR and Eastern Europe, while no mention is made of the availability of sports facilities and the support given to female athletes in these countries.

Similarly, while women in nontraditional sports are the targets of these kinds of speculations, female gymnasts and skaters receive unqualified approval for their grace and femininity, despite the fact that these may have been achieved through puberty-delaying drugs and starvation diets. Typically, the marital and maternal status of female athletes, together with the commentator's assessment of their heterosexual attractiveness, receive more media attention than their sporting performance. However, while the athlete is expected to be feminine in appearance, her training and performance are invariably evaluated in terms of male standards. These trends in the coverage of women's sport both reflect and reinforce the assumption that sporting success and femininity — are incompatible, and that this combination in a woman is worthy of comment.

Halpert's (1988) open letter to the producer of NBC Sports on American television and print media coverage of the 1988 Olympics is a scathing critique of male sports reporters' and commentators' sexist and demeaning treatment of female athletes. Bentley (1988) and McCann (1988) provide a similar analysis of Canadian reporting.

As in most other areas of sport, women who wish to pursue careers in sports journalism face significant barriers. While men have long felt qualified to report and comment on women's sport, there are few women who have been given the opportunity to do the same for men's sports. A 1984 study of 115 articles from American magazines dealing with international tennis players reported that all the articles on major championships, and all but two on male players, were authored by men, while women wrote almost half of the stories on female players (Hilliard, 1984).

It has been well documented that the coverage of women's sport in American newspapers and sport magazines, averaging 10 to 15%, is by no means representative of current female participation. While some specialized publications such as *Tennis* and *Runner's World* were more positive in the quantity and quality of their coverage, the top-selling *Sports Illustrated* not only ignored, for the most part, the existence of sportswomen, but also took deliberate steps to present women as sex objects, both in its annual swimsuit issue and in the messages conveyed by its regular advertising (Bryant, 1980; Rintala and Birrell, 1984). Canadian newspapers and magazines have not been subjected to the same kind of content analysis, but there are clear indications of the same patterns. It is not coincidental, for example, that the *Toronto Sun* sport section, while paying little attention to female athletes, also housed that paper's entire collection of advertisements for establishments that featured exotic female dancers and strippers.

The introduction, in 1974, of an American magazine devoted exclusively to women's sport — *Women Sports*, now called *Women's Sports and Fitness* — was a potentially progressive step, increasing the coverage of female athletes as well as proving publishing opportunities for women in sports journalism. However, as Boutilier and San Giovanni (1983) have convincingly documented, the political slant of this magazine has undergone a dramatic change from its early pioneer spirit and feminist perspective to its current conservative approach and preoccupation with fashion, both in advertising and in feature articles. Coverage of women's sport in *Ms* magazine has undergone some of the same transformation in recent years, with earlier analyses of sex discrimination in sport replaced by uncritical reports of female participation in appropriately feminine sports such as rhythmic gymnastics and synchronized swimming. Non-commercial publications, such as the feminist newspaper *Off Our Backs (OOB)*, provide more insightful analysis of U.S. issues from time to time. For example, *OOB's* article on the Women's Sports Foundation's 1983 Conference was one of the few critical reports to be written on this event (Krebs, 1984).

It has been suggested that commercial pressure resulting from sponsorship by cosmetic and cigarette companies is responsible in part for current conservative trends in advertising and journalism. Commercial sponsors such as Avon or Virginia Slims require that an unmistakably feminine, heterosexual image be projected by female athletes in the events they sponsor (Boutilier and San Giovanni, 1983; Hilliard, 1984) (see Sport, Gender and Sexuality, p. 48). It could be argued that there are alternative, equally effective marketing approaches that commercial sponsors might consider. Beverage companies, for example, might adopt the idea of women enjoying their product after a softball or basketball game, rather than portraying women exclusively as spectators of male sports, serving the male player his drink after the game. This is not to suggest, however, that the association of sport and physical activity with the alcohol, tobacco, or cosmetic industry, or any other enterprise which exploits women or endangers consumers' health, is desirable.

There is no Canadian equivalent to *Women's Sports* or *Ms.* The "body image" issue of *Horizons* (April, 1983) included several articles on sport and physical activity and there have been a few articles on related issues since that time. A new Alberta periodical, *The Newsmagazine for Alberta Women*, has a regular sport and fitness column by Kathy Somerville. Local feminist publications such as *Broadside* (Toronto) and *Kinesis* (Vancouver) include sport-related articles on a fairly regular basis. These are available by subscription as well as through bookstores. Finally, the *CAAW&S Newsletter*, available with membership, deals exclusively with issues of women and sport, and featured, in 1983 and 1984 issues, a media-watch column which commented on positive and negative treatment of women in sport journalism. Canadian feminist journals and periodicals are listed in Appendix B. However, many have now ceased publication due to funding problems.

The following recommendations for media treatment of women, issued by MediaWatch/Evaluation – Médias in 1989, summarize some key feminist concerns:

— Use non-sexist language

— Use parallel language

— Depict women as experts

— Depict realistic appearance (re: culture, race, age)

— Depict contemporary (non-stereotypical) families

— Cease portraying women as sexual objects.

On the topic of language, it is important to recognize that gender-neutral language is not always appropriate and that there are many occasions when it is important to be gender-specific. For example, while a gender-neutral term such as 'athlete' is preferable to 'sportsman', it is misleading and inaccurate to discuss an issue such as sexual harassment in gender-neutral terms; this would imply that the problem is experienced equally across the male and female populations, whereas in fact most perpetrators are male and their targets are female. Gender-specific language is needed to make sex-related trends explicit.

Becker, M. The outdoors is her business. *Status of women 6 (2), 1980, 14-15.*

Belliotti, R.A. Sports, sex-equality, and the media. *In, Postow, B.C. ed., Women, philosophy, and sport. Metuchen, N.J.: Scarecrow Press, 1983, p. 96-114.* SIRC/CDS, SIRLS

Bentley, P. Advertising: girls in bikinis. *Breaking the silence 7 (1), 1988, 6-7.*

Boutilier, M.; SanGiovanni, L. Chapter 7. *In, Boutilier, M. and SanGiovanni, L., The sporting woman. Champaign, Ill.: Human Kinetics, 1983, p. 183-218.* SIRLS

Bryant, J. Two-year selective investigation of the female in sport as reported in the paper media. *Arena review 4(2), 1980, 32-44.* SIRC/CDS, SIRLS

Campbell, P. Women in sports in children's books: wealthy, white and winning. CIBC *Bulletin 10 (4), 1980, 3-10.* SIRC/CDS

Halpert, F. You call this adorable? An open letter to the producer of NBC sports. *Ms, Oct 1988, 36-39.*

Hilliard, D.C. If you've come a long way, why do they still call you baby: magazine profiles of women profesional tennis players. *North American Society for the Sociological of Sport, Annual meeting, unpublished paper, 1983.* SIRLS

Hilliard, D.C. Media images of male and female professional athletes: an interpretive analysis of magazine articles. *Sociology of sport journal 1(3), 1984, 251-262.* SIRC/CDS, SIRLS

Hoffman, A. About face: towards a positive image of women in sport. Ottawa: OSWC, 1976. SIRC/CDS, SIRLS

Klein, M.L. Women in the discourse of sport reports. *International review for the sociology of sport 23 (2), 1988, 139-152.* SIRC/CDS, SIRLS

Lareau, S. Le sport et les femmes: une réflexion à peine amorcée. *Canadian woman studies/Les cahiers de la femme 4(3) 1983, 7-10.* CDS/SIRC, SIRLS

Lenskyj, H. Myth making spoils sports. *Broadside 6 (8), 1984a, 4.* SIRC/CDS

Lenskyj, H. Women in sport in the 70s and 80s: no, Virginia, we have not come a long way. *Canadian Association for American Studies Conference, unpublished paper, 1984b, 1-6.* SIRC/CDS

Lenskyj, H. Women in the Olympics: media myth-making. *CAAWS newsletter 3 (4), 1984c, 2-3.* SIRC/CDS

MacNeill, M. Active women, media representations, and ideology. *In, Harvey, J. and Cantelon, H. eds., Not just a game: essays in Canadian sport sociology. Ottawa: University of Ottawa Press, 1988, p. 195-211.* SIRC/CDS, SIRLS

MacNeill, M. Médias, femme active et idéologie. *Dans, Harvey, J. et Cantelon, H. eds., Sport et pouvoir: les enjeux sociaux du Canada. Ottawa: Les Presses de l'Université d'Ottawa, 1988, p. 199-217.* CDS/SIRC

McCann, P. Seductive spectacle. *Broadside 9 (7), 1988, 9.*

McCormack, T. The new female jocks. *Canadian woman studies 4(3), 1983, 55-58.* SIRC/CDS

McKay, J.; Rowe, D. Ideology, the media, and Australian sport. *Sociology of sport journal 4 (3), 1987, 258-273.* SIRC/CDS, SIRLS

The Miller Lite report on American attitudes toward sports. Milwaukee, Wis.: Miller Brewing Company, 1983. SIRC/CDS, SIRLS

Poe, A. Active women in ads. Equality in advertising. *Journal of communication 26(4), 1976, 185-192.* SIRC/CDS

Purdy, K. Fair coverage. *Branching out 5 (4), 1978, 6-9.* SIRC/CDS

Reid, L.N.; Soley, L.C. Sports Illustrated's coverage of women in sports. *Journalism quarterly 56(4), 1979, 861-863.* SIRLS

Rintala, J.; Birrell, S. Fair treatment for the active female: a content analysis of Young Athlete magazine. *Sociology of sport journal 1(3), 1984, 231-250.* SIRC/CDS, SIRLS

Sloan, L.; Kramer, A. Running on the spot: how it is today. *In, Sloan, L. and Kramer, A., Running: the women's handbook. London: Pandora Press, 1985, p. 36-45.*

Theberge, N.; Cronk, A. Work routines in newspaper sports departments and the coverage of women's sports. *Sociology of sport journal 3 (3), 1986, 195-203.* SIRC/CDS, SIRLS

Whannel, G. The television spectacular. *In, Tomlinson, A. and Whannel, G. eds., Five-ring circus. Money, power and politics at the Olympic Games. London: Pluto Press, 1984, p. 30-43.* SIRC/CDS, SIRLS

Other Resources / Ressources additionnelles

Association of Women in Sports Media (AWSM)
PO Box 355 Alameda, CA 94501, USA

Women in motion: guidelines for non-sexist language and visual materials/ Femmes en marche: un guide pour éviter le sexisme dans la langue écrite et parlée et dans les documents audio-visuels. Fitness and Amateur Sport/Condition physique et Sport amateur. (Laminated, available free of charge.)

Sport in Canadian Schools, Universities and Communities

The tradition of associating competitive sport with males, and recreational activities with females, is well established in most Canadian schools, universities and communities. There are opportunities for males to engage in a wide range of competitive team sports, while, in programming for girls and women, there remains a strong emphasis on fitness and recreational activities and, overall, a much narrower range of options in sport. This is not to suggest a hierarchy in terms of the worth of these activities, but rather to point out that both sexes, but especially females, are denied access to the full range of sports. While it is obviously a valid strategy to offer dance exercise as a first step in promoting physical fitness and self-confidence, it is unfortunate that many schools and community centres do not build on girls' and women's developing interests and abilities by offering more diverse and challenging activities and by maximizing opportunities for participation in both integrated and single-sex programs (see Socialization of Girls' and Women in Sport, p. 39).

Schools

Trends in school athletic and physical education programs and in participation have been documented for specific school boards and regions in Canada, but much research remains to be done in this area. Two surveys which might serve as models for future research were recently conducted by the Ottawa and the Scarborough Boards of Education (Quirouette et al., 1983; Baker et al; 1981). The Ottawa study investigated programs, participation and coaching, while the Scarborough study, like MacIntosh's earlier Ontario research, examined subject selection and student attitudes (MacIntosh, 1978, 1981-82).

Most of the research to date has reported that a higher proportion of adolescent girls than boys chose not to participate in sport and physical education, and that girls in this age group attached more importance to fitness, health and weight control aspects of PE than to the enjoyment and competition of team sports. It is important to note that strategies for encouraging non-participants differ in many respects from those recommended for bringing about equal opportunity in competitive sport. The development of basic skills and satisfactory fitness levels in sex-segregated physical education classes may be a necessary first step for many adolescent girls. It is clear, however, that those girls who are skilled and fit enjoy participating in competitive team and individual sports throughout their school years and deserve the same or equivalent opportunities to do so as their male counterparts, whether through integrated or single-sex programs.

In intramural and interschool competition at the elementary level, the Ottawa study reported that, in most schools and in almost every sport, boys' participation exceeded girls, even though all programs except track and field were organized coeducationally. Coeducational physical education was offered in about 30% of Ottawa high schools. In cases where segregated instruction was given, the sports in question were those traditionally associated with one sex — dance and football, for example. From grade nine on, when physical education is an optional subject, the Ottawa study reported that more girls than boys chose not to participate. MacIntosh's research, as well as studies conducted in Edmonton and Halifax, also supported this finding (MacIntosh, 1981-82; Butcher, 1982, 1983).

Much of the sex difference in participation rates in Ontario interschool sports can be accounted for by so-called single-sex programming based on traditional sex divisions. In 1981-1982, the team sports of football, rugby and hockey accounted for 25% of male participation; basketball, volleyball and soccer brought the figure up to 60%, representing about 70,000 boys. Girls were not offered football, rugby or hockey; basketball, volleyball and soccer accounted for 47% of girls' participation, and field hockey, a girls-only sport, for an additional 3.5%, representing about 38,000 girls (Lenskyj, 1984).

The 1985 survey of provincial physical and health education curricula at the elementary and secondary levels is a useful source of information listing principles of organization and design, methods, materials and content (*Physical and Health Education/Education physique et santé*, 1985). Ongoing initiatives by CAHPER and other organizations towards Quality Daily Physical Education programs in Canadian schools have important implications for increasing activity levels and skills development among girls.

Association canadienne pour la santé, l'éducation physique et le loisir. Éducation physique quotidienne de qualité. Liste de références choisies. Ottawa: ACSEPL, 1988. CDS/SIRC

Canadian Association for Health, Physical Education and Recreation. Quality, daily physical education. Selected reference list. Ottawa: CAHPER, 1988. SIRC/CDS

Cockerill, S.; Hardy, C. The attitudes of fourth year girls towards the secondary school P.E. curriculum. *Bulletin of physical education 23 (1), 1987, 6-12.* SIRC/CDS, SIRLS

Evans, J. Some thoughts on the political and pedagogical implications of mixed sex grouping in the physical education curriculum. *British educational research journal 13 (1), 1987, 59-71.*

Feltz, D.L.; Weiss, M.R. The impact of girls' interscholastic sport participation on academic orientation. *Research quarterly 55(4), 1984, 332-339.* SIRC/CDS, SIRLS

Griffin, P.S. Girls' and boys' participation styles in middle school physical education team sport classes: a description and practical applications. *Physical educator 42 (1), 1985, 3-8.* SIRC/CDS, SIRLS

Harding, C.; Nelson, J. Educating for self-defense. Information and physical strategies can protect women and children against violent attack. *Journal of physical education, recreation & dance 56 (1), 1985, 112-114.* SIRC/CDS

Humberstone, B. Learning for a change: a study of gender and schooling in outdoor education. *In, Evans, J. ed., Physical education, sport and schooling: studies in the sociology of physical education. London: Falmer Press, 1986, p. 195-213.* SIRC/CDS, SIRLS

Lenskyj, H. Fair play: sex equality in school sports. *Orbit 18 (4), 1987, 22-23.*

Marsh, H.W.; Peart, N.D. Competitive and cooperative physical fitness training programs for girls: effects on physical fitness and multidimensional self-concepts. *Journal of sport & exercise psychology 10 (4), 1988, 390-407.* SIRC/CDS, SIRLS

McGinn, A. Physical education - do it daily (school physical activity program-SPAP of CAHPER): quality physical education, grades K-12 in Canadian schools. *International journal of physical education 23 (3), 1986, 26;31-35.* SIRC/CDS

Physical and health education: a survey of provincial curricula at the elementary and secondary levels. **Éducation physique et santé:** revue des programmes d'études provinciaux aux niveaux primaire et secondaire. Toronto: Council of Ministers of Education/Conseil des ministres de l'Éducation, 1985.

Sabock, R.J.; Seygal, L. Athletic programs: female students discuss values of high school athletic participation. *Interscholastic athletic administration 12 (3), 1986, 13-15.* SIRC/CDS

Scraton, S.J. Gender and girls' physical education. *British journal of physical education 17 (4), 1986, 145-147.* SIRC/CDS, SIRLS

Universities and colleges

A five-year study (1978-83) of relative opportunities for women in the Canadian Interuniversity Athletic Union (CIAU) showed that female participation had increased by 26% over this period, compared to a 15% increase for males. However, the final sex distribution was balanced in favour of males, 70% to 30%. In specific sports, men's hockey increased by 106 athletes, over the five years, and participation in men's swimming and diving by 131; participation in women's field hockey decreased by 65, while women's volleyball added 21 athletes, the only women's sport to expand. As was the pattern in high schools, the team sports which were primarily or exclusively for males — hockey, football and soccer — had more participants, more events and bigger rosters than most women's sports. In 1983, for example, there was only one CIAU sport, volleyball, with more female than male players, but the number of men in football exceeded the number of females in volleyball and basketball together (Inglis et al., 1983; Vickers et al., 1982).

Patterns of opportunities in interuniversity sport are reflected in declaration rates, that is, the percentage of programs actually entered, compared to the number of CIAU programs possible. The biggest sex difference, and the lowest rate for women, was reported in the Quebec conference, with 37% for females and 44% for males, compared to the national rates of 61% and 63% respectively. At the college level in Quebec, too, figures for sport associations in CEGEPs (1981-1982) showed that, although the majority of students were women, only 30% of participants were females. There were no women's teams in ice hockey or football, and men's teams outnumbered women's in soccer, basketball and handball. In volleyball, however, there were 22 women's teams and 18 men's and, in touch football and rugby, men and women had three teams each (Larivière and Montpetit, 1983).

The Proceedings of the CIAU National Leadership Conference for Women in University Sport (1987) include reports of presentations by nine women and men in sport administration, the majority of whom took a specific feminist perspective. Among the barriers to full female participation in university sport identified by the speakers were: inequities in funding; gender-biased course content; hostile learning environments; and sexual harassment.

Strategies for change included: clear identification of problems, goals and priorities; internal support networks as well as links with other feminist organizations; affirmative action initiatives to train female coaches and administrators; lobbying through groups outside physical education departments, such as student associations, women's groups or associations of female faculty.

Baumann, S.; Henschen, K. A cross-validation study of selected performance measures in predicting academic success among collegiate athletes. *Sociology of sport journal 3 (4), 1986, 366-371.* SIRC/CDS, SIRLS

Brault, L.; Laberge, S. Les filles face à l'activité physique au niveau collégial. *Communication non-publiée, 1985, 1-19.* CDS/SIRC

Dagg, A.; Thompson, P. Mis-Education: women and Canadian universities. Toronto: OISE Press, 1988.

Fitness and Amateur Sport Women's Program. Proceedings of the National Leadership Conference for Women in University Sport. Montreal: Concordia University, 1987.

Flynn, A. Dualism and dance. *In, Thomm, W. ed., The effects of feminist approaches on research methodologies. Waterloo: Wilfrid Laurier University Press, 1989, 170-181.*

Macintosh, D. Guest commentary: female participation in Ontario inter-university sport programs. Commentaire spécial: l'égalité pour les femmes dans le sport interuniversitaire. *CAHPER journal/journal de l'ACSEPL 55 (2), 1989, 7-11.* SIRC/CDS, SIRLS

Martens, F.L. Academic achievement of intercollegiate athletes: in physical education at the University of Victoria. *CAHPER journal 51 (7), 1985, 14-22.* SIRC/CDS

McIntosh, P. Universities and sport. *International Council of Sport Science and Physical Education review 8, 1985, 75-79.* SIRC/CDS

Meacci, W. G.; Price, E. E. Women's attitudes and motivations toward participation in intramural activities within the Pennsylvania State University Commonwealth Campus system. *N.I.R.S.A. journal 11 (1), Fall 1986, 19-22.* SIRC/CDS, SIRLS

Pomfret, M. Toward equivalence of opportunity. *In, Taylor, A.W. ed., The role of interuniversity athletics: a Canadian perspective. London, Ont., University of Western Ontario, 1986, p. 83-88.* SIRC/CDS, SIRLS

Stinson, D. L'influence de facteurs de socialisation passés et actuels sur les participantes et non-participantes aux programmes intra-muros des collèges. Association canadienne de loisirs intra-muros, 1984. CDS/SIRC

Stinson, D. The influence of past and present socialization factors on female participants and non-participants in college intramural programs. Canadian Intramural Recreation Association, 1984. SIRC/CDS

Vickers, J.N.; Gosling, B.J. The changing participation of men and women in the Canadian Interuniversity Athletic Union 1978-1982. Ottawa: Women's Representative Committee, CIAU, 1984. SIRC/CDS

Community recreation

A survey of programs offered in Toronto, East York, Scarborough, Hamilton and Vancouver, (1981-1984) showed that local parks and recreation departments have not been particularly responsive to the diverse needs and interests of girls and women. The trend has been to provide plenty of opportunities for fitness and dance exercise classes for females, while often neglecting sports, especially team sports. The fact that some recreation centres (e.g., East York, a borough of Toronto) continue to offer baton twirling to girls, and that cheerleading was listed as a girls' inter-school activity in Ontario as recently as 1982, attests to the pervasiveness of traditional sex divisions in sport and recreation programming.

The high proportion of arts and crafts programming for girls, and the fact that cooking, choir, theatre arts, cheerleading and baton twirling were included as girls' "physical recreation," attracted the attention of the Toronto Mayor's Task Force on the Status of Women in 1976. It was recommended that such programs be removed and that more opportunities be provided for girls' and women's team sports, specifically basketball. Some of the recommendations were quickly adopted, but drama and cooking (coeducational) continue to be offered as "physical recreation" (Mayor's Task Force, 1976; Lenskyj, 1984a).

The situation in community sport for girls up to the age of about 12 is somewhat more promis-

ing. Coeducational programs in team sports at the house league level operate in some communities, especially in rural areas where numbers make sex-segregated teams and leagues impractical (Sex-Integrated Sports, 1981; Lenskyj, 1984a). In the case of hockey, current policy guidelines of the Canadian Amateur Hockey Association's Female Council specifically recommend integration in communities where there are no equivalent opportunities for girls.

In response to women's lobbying efforts, Wen-do (women's self defence) is now offered free of charge by some school boards and municipal parks and recreation departments. Women's groups may find it useful to cite the precedent set by Toronto Parks and Recreation Department, which now offers free Wen-do courses (see Women-only sport and recreation, p. 68). Many progressive physical and health educators are also recognizing the need to include self defence for girls even at the elementary level (Harding and Nelson, 1985), in the face of mounting evidence that schools are sites of male violence against female students (Matthews and Stermac, 1989; Lewis, 1987).

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Women-only sport and recreation

In recent years, there has been marked growth in sport clubs, leagues and programs organized by women for women. These will be referred to as *women-only* activities in order to distinguish them from programs for women conducted by parks and recreation departments, which have been referred to elsewhere as *community* programs. Activities organized by women in centres such as Toronto and Vancouver include team sports, outdoor activities, self-defence courses and fitness classes for overweight women (see Physical activity and weight control, p. 110). There is a wide range of ages and fitness levels among participants, and most programs permit participation according to individual needs and ability.

Many women-only programs have a different philosophical basis from the hierarchical, competitive model of most male-defined sport and physical activities. Mitten's (1985) principles of leadership for women's outdoor programs are similar to those used in many other women-only contexts, both inside and outside sport. Some key

components are: projecting a feeling of safety or security for participants: avoiding situations which generate unequal relationships and may sabotage the goal of cooperation; providing individuals with choices regarding participation; avoiding a success/failure approach to challenges; and promoting shared decision-making and collectivity.

Women-only team sports are organized on various models ranging from competitive to cooperative. Some leagues are experimenting with modifications to the standard rules of the game in order to make participation more enjoyable and rewarding for all players (Phibbs, 1985). The all-women organization of these leagues is itself unusual, since most community leagues for women are organized, coached and officiated by men.

A problem common to new women-only leagues concerns facilities: many parks departments allocate fields and rinks on a historical basis, giving last year's users priority over new users. Both the Vancouver and the Hamilton facilities studies conducted by CAAW&S (1983) found that girls and women were given less facility time, less prime time and inferior fields. Studies like these provide a useful model for groups wishing to conduct their own research into local parks department policies, and the results can be used to good effect in arguing for new policies which do not discriminate against women (see Advocacy, p. 25).

Although more highly organized in the U.S. women-only outdoor programs operate in some Canadian centres, offering canoeing, camping, backpacking, rock-climbing, etc. The existence of such programs challenges the traditional notion that women need the leadership, strength and protection of men when engaging in these kinds of activities. A 1983 survey of American women who participated in these programs reported that the principal motive for selecting women-only outdoor activities was "freedom from gender-imposed roles". Women reported that in this setting they felt they got equal time to practise skills and an equal amount of attention and feedback from leaders (Miranda and Yerkes, 1982; Yerkes and Miranda, 1985).

Similar rationales were given by women rock climbers surveyed in 1982, who cited companionship, a greater sense of equality and a higher degree of self-reliance when they climbed with other women. The author concluded that experience in women-only groups serves as the necessary preparation for women to participate equally with male climbers., whereas in mixed groups, men and women tended to follow traditional patterns of leadership and dependency based on sex rather than ability (Andrews, 1984).

In the American outdoor programs investigated, which ranged from one-day hikes to Outward Bound courses, the survey found that certain groups of women were under-represented or absent: housewives, working class women and women of colour. It appears likely that the same pattern exists in the Canadian context, although there is little empirical research in this area.

During the last decade, women have become increasingly concerned with learning to defend themselves against sexual assault. In addition to the eastern martial arts, often taught in authoritarian, male-dominated settings, several self-defence methods and courses have been developed specifically for women, the most popular being Wen-Do, a system which more than 14,000 Canadian women have learned since 1979. Many women-only self-defence courses have a feminist focus: instructors stress the strengths and resources which women can utilize, while recognizing at the same time how socialization may inhibit women from defending themselves either verbally or physically. Classes are often geared to the needs of special groups, such as lesbians and disabled, elderly or obese women (Pearson, 1979; Mulroney and Lutter, 1979).

Recent woman-centred initiatives include: an outdoor education course for survivors of sexual abuse organized in collaboration with Outward Bound (Wartik, 1986); exercise classes for female inmates at a women's prison (Kort, 1987); and a feminist class called Physical Education without Fear, a movement and discussion class that explores issues of self-image and develops movement skill and security (Bennett et al. 1987; Lyons, 1988).

The potential for feminist transformation of sport through women-only and/or lesbian softball leagues has been investigated by Birrell and Richter (1987), and Zipter (1988). They documented how women have put into practice the feminist goals of cooperation, collective decision-making, friendship and enjoyment through sport. These leagues have attempted, with considerable success, to transcend the divisions of athletic ability, socio-economic status, race and sexual orientation that usually divide women.

Women are also investigating the relationships between feminism and the martial arts, as well as their potential for women's empowerment when taught in supportive, women-only settings (Harber, 1986; Women in the martial arts, 1987; avMaat, 1988). A recently established feminist journal, *Woman of Power*, is a good source of articles on these topics.

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Women and leisure

Women's leisure activities have frequently been overlooked in leisure studies research. Definitional problems were in part responsible for their exclusion: if "work" was defined as paid labour, then "leisure" comprised the activities carried on outside of working hours. Such divisions were meaningless when applied to women engaged in unpaid labour in the home. Furthermore, it has been suggested that the employed woman with a double workday perceives her domestic activities, carried out in the isolation of the home, as "work," while viewing some aspects of her outside occupation as "recreational," because of the compensating social contacts it offers. Alternatively, a woman at home with preschool children may view her life positively, because she sees work and leisure as integrated in her daily routine. The findings that married women with paid work do less housework, and have more leisure time, than those with no paid work, further attest to the complex nature of women's work and women's leisure (Talbot, 1979; Deem, 1982; Gregory, 1982).

Social class and race/ethnicity are factors affecting the quantity and quality of discretionary time available to women. The sexual double standard within the family, however, cuts across most societal divisions. Men are seen as "earning" their leisure by virtue of both their work outside the home and their superior status in society, while women with family responsibilities are expected to put others' leisure needs before their own, thus demonstrating the kind of nurturing and self-sacrifice that is considered a requirement of the wife-and-mother role. The fact that many of women's so-called leisure pursuits, from knitting to taking children to the park, are productive as well as recreational, illustrates this expectation.

Since women remain the primary caretakers of children, the requirement that mothers be on call day and night severely limits the amount of time which may actually be termed "free time". Some community recreation programs geared to mothers of small children have adopted the solution of collective child care, where the women rotate child care duties. Although it has practical benefits, this approach reinforces the notion that child care is women's responsibility. It would be difficult to contemplate a parallel situation where men alternated baby-sitting and hockey practice. If paid child care, organized by the recreation centre rather than the women, is not financially feasible, another option is to enlist male volunteers to look after children during women's classes or events.

Deem (1982) has identified additional elements of women's oppression in relation to leisure: women's economic insecurity under a capitalist mode of production; female sex-role socialization in school, with a restricted range of sport and recreational opportunities; cultural representation of women in traditional roles in the media; state social policy which gives primacy to women's wife-and-mother role; male control of female sexuality through sexual harassment and abuse and control of the female reproductive function; and constraints on women's freedom of movement if unaccompanied by men. The preceding discussion has shown that these social attitudes and practices have far-reaching implications for the quantity and nature of sporting and recreational opportunities available to girls and women. On a more positive note, it has been seen that women-only sport challenges these elements of women's oppression.

A 1988 Quebec study sponsored by the Ministère du Loisir, de la Chasse et de la Pêche (Perron, 1988) investigated the leisure needs and attitudes of Quebec women. A survey of over 3,000 women showed that age, occupation and family responsibilities (especially the care of preschool children) were the key factors determining their leisure status, and that lack of time was the most common constraint.

Increasingly, feminist perspectives on women's leisure are appearing in the social science literature. As Talbot (1988) pointed out, British feminists have made an important contribution by developing feminist approaches to leisure and cultural studies. Rather than perpetuating the traditional victim-blaming approach that implies that it is women, and not the sport and recreation delivery system, that need to change, radical feminist scholars are examining the full contexts of women's lives and identifying the constraints posed by family responsibilities, work schedules, economic need, fear of sexual violence, etc. (Stanley, 1980; Deem, 1986, 1987; Thomas, 1985; Chambers, 1986; Wimbush, 1986).

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Careers in sport

Much of the literature dealing with the problem of girls' and women's lower participation as athletes, coaches and administrators focuses on the individual's qualifications, attributes and interests, rather than on the structural barriers to greater female involvement. In other words, these analyses ask "what is wrong with women that they are not advancing up the career ladder?" rather than asking what is wrong with the ladder itself.

Using the organizational rather than the individual model, Macintosh and Whitson (1988) examined the structural barriers facing Canadian women in sport leadership. They reported that many aspects of the workplace and job expectations posed barriers to women's achievement: lack of child care facilities; the requirement of weekend and overtime work; and the hierarchical and bureaucratised sport system. Sexual harassment and homophobia pose further barriers to women's advancement in sport careers. Both females and males in sport leadership would benefit from a more humane, egalitarian and consensual climate in the sport delivery system.

Athletes

Financial assistance for high performance athletes in Canada is provided by Fitness and Amateur Sport's Athlete Assistance Program. A

comparison of male and female recipients, 1972-79, showed that 52% were female (Hall and Richardson, 1982). There are still many sports which offer no national or international competition for women. Soccer, ice hockey and water polo, for example, have neither Olympic events nor world championships for women, a gap which tends to limit opportunities for athletes at lower levels of competition, as well.

Many high performance sports in which females participate in equal or greater numbers than males — gymnastics, figure skating and swimming, for example — are also characterized by the young age of the athletes, many of whom are still children. The time demands of national teams' training programs account, in part, for the young age of high performance athletes: students predominate in many team sports (Broom, 1980). These patterns raise ethical concerns related to the rights of young athletes whose treatment at the hands of authoritarian parents and coaches may not be in their best interests. Many older athletes — male and female — have also been unjustly disciplined or suspended by coaches, with no right of appeal (Kidd and Eberts, 1982; Cantelon, 1981).

Athletes' views of sport as "playful activity" and their role in sport as "players", not "workers", are factors in the athletes' rights issue. A 1982 survey of American college basketball players on scholarships showed that only a minority viewed themselves as employees, with the right to unionize and to bargain over issues of pay, benefits and working conditions. Sex differences on these questions were small (4%-8%), but females were less likely than males to view themselves as sport employees (Sack, 1982). The higher prestige attached to men's intercollegiate athletics probably accounts for some of the differences in attitudes.

In a sphere of activity characterized by youthfulness, the expansion of age-class competition, specifically masters'/veterans' competition, promises to develop older athletes' potential more fully. The benefits for women are particularly important: age-class competition counters the current trend towards youthfulness, and the accompanying emphasis on physical attractiveness, found in many high profile female sports, and increases the opportunities for women to continue competing throughout the life cycle. As well, younger athletes are able to look to older sportswomen as role models (Palmason, 1983). It seems likely, too, that a branch of sporting competition which began at a time when sex equality was a recognized issue might avoid some of the discriminatory attitudes and practices seen in sports with a long history of male control (see Physical Activity over the Adult Life Cycle, p. 103).

Useful insights into the experiences of elite Canadian sportswomen are provided in two recent biographical accounts: Brill and Lawton (1986) and Clarke and Gwynne-Timothy (1988). Opportunities for women in professional sport are discussed by Clement (1987) and Lehr and Washington (1987), while Bentley (1988) presents a feminist argument against female participation in professional sport.

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Coaching

Women are currently underrepresented in all aspects of coaching, from volunteer positions in elementary schools to positions on national teams. The Ottawa Board of Education study clearly documented these trends in the school system. Whereas it was common for male teachers to coach girls' and coed teams as well as boys' teams, this kind of crossover was rare for female teachers, who seldom coached coed teams and almost never coached boys (Quirouette, 1983). The double workday of many female teachers accounts in part for this pattern: household and child care duties make it difficult for many to volunteer for extra-curricular activities. Additionally, since few women maintain their involvement in team sports after adolescence, female teachers may not feel adequately qualified to assume coaching duties. Several school boards are currently developing coaching clinics for female elementary teachers, as well as considering the need for incentives or compensation for volunteer coaches.

In a Canadian study of burnout among secondary school teacher-coaches, Quigley et al. (1989) found that gender was one of the major factors influencing an individual's level of burnout. Female teacher-coaches had heavier coaching responsibilities and married teacher-coaches, coping with the double workday, were especially prone to burnout.

At the university and college level, the 1982 Survey of Women in Sport Leadership found that more women were employed in physical education and athletic departments in colleges (31%) than in universities (29%). Investigating coaching qualifications gained through the National Coaching Certification Program, the survey reported that nearly half of the women coaching in colleges, and 16% of those coaching in universities, had no certification, and overall only 15% were certified beyond level II. The proportion of women in the coaching program was 39% for level I (certified), dropping to 33.5% for level II and 17% for level III. As in other situations, multiple demands on employed women's time may make it difficult for them to upgrade their certification. Furthermore, the full complement of theory and technical coaching courses is not regularly offered in all sports (Women in Sport Leadership, 1982; Kirby, 1982; Lewis, 1981).

The 1981 National Survey of women in national sport organizations was updated in 1985-86, and plans were made to conduct an update every two years. Only 7% of head coaches, 18% of assistant coaches and 32% of other national team staff were female. The 1988 figures were 14% for head coaches and 14% for other coaching staff.

Theberge (1988) conducted a study of the coaching careers of female coaches in Canadian universities and clubs. She found that, although they found support in their entry into coaching, they experienced barriers, and sometimes blatant discrimination, in their attempts to enter the national team program.

A five-year study (1978-83) of opportunities for women in the Canadian Interuniversity Athletic Union (CIAU) found 110 male and 71 female head coaches of women's athletic programs. The figure for males represented over 100% increase since 1978, when men's and women's athletic departments amalgamated in every conference except Ontario. In the same period, the number of female head coaches dropped by 10% (Inglis et al., 1982). Similar attrition was identified in American universities in the period 1974 to 1979, following the implementation of Title IX, when mergers between athletic departments took place (Holmen and Parkhouse, 1981). Although the number of female participants, and hence the number of coaching positions, increased dramatically, both the numbers and percentages of female coaches have continued to drop during the 1980s (Hart et al. 1986; Knoppers, 1987). Hasbrook (1988) documented discriminatory hiring practices, based on male athletic administrators' incorrect, sex- stereotypical assumptions that female coaches were less qualified, less willing to travel and more concerned with family responsibilities than males.

The increased competitive nature and status of coaching female athletes in the post-Title IX period led to the assumption that men were more suited for these positions. Furthermore, female applicants reported that administrators informally investigated their sexual orientation, and rejected those who were lesbian (Potera and Kort, 1986).

No doubt, these kinds of sexist and homophobic assumptions account for many of the barriers confronting Canadian women coaches, as well. As Macintosh and Whitson (1988) point out, there needs to be a commitment on the part of provincial and national sports organizations, for example, by offering coaching apprenticeships for women.

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Administration: paid

The 1981 survey reported women's representation in middle management positions in athletic departments to be 35% in colleges and 29% in universities; at the level of dean or director, the figures were 7.5 and 6%. Of 18 full-time manager/promotor positions in Canadian universities, women held three.

According to the CIAU study, there were 23 women and 74 men in full-time athletic administration (1982-3); 15 of the women were in the Ontario Conference. For the preceding four years, Ontario accounted for 70-75% of all female athletic administrators in Canada. Of the 22 female delegates to the CIAU 1982 annual meeting, 12 were from Ontario, which was the only conference to maintain a separate governing organization for men's and women's athletics after the amalgamation of athletic departments in 1978. These patterns illustrate the same unintended outcome of amalgamation that was experienced in American universities. As long as the position of women's athletic director existed, there was a guaranteed place for women in decision-making within university athletics, whereas the general position of athletic director (men's and women's) was more likely to be filled by a man than a woman, since, judged by criteria like experience and seniority, males as a group were more likely to qualify (Williams and Miller, 1983).

In 1985, statistics for national sport organizations (NSOs) with paid staff showed that women held 24% of the positions as chief executive officer but tended to be concentrated in NSOs with smaller operating budgets (under $1 million). Of 18 NSOs with budgets over $1 million, only one was directed by a woman. Women held 21% of positions as technical directors, with no significant relationship between gender and budget size (FAS statistical update, in progress).

	Chief executive officer	Technical director	Program coordinator
1980	16%	18%	40%
1985-96	24	17	62
1988	29	25	70

Similar patterns were identified in provincial sport administration. In Ontario (1983) women comprised 36% of paid staff. Rhythmic gymnastics and synchronized swimming were administered almost entirely by women, whereas other exclusively female sports such as ringette and women's softball had both male and female administrators. The same patterns emerged in coaching and officiating (Sopinka, 1983). These trends suggest that women in the newer women's sports experienced a more urgent need to develop strong female coaching and administrative structures whereas, in the case of established sports, the availability of male as well as female staff made women's professional development a lower priority.

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Administration: voluntary

National and provincial sport organizations in Canada are primarily a volunteer enterprise. A 1981 Ontario study showed the typical volunteer to be male, married, Canadian born, well educated and working in supervisory roles in their paid employment. Nearly twice as many men as women held technical positions in the organization. These roles were described as responsible, prestigious, satisfying and conducive to advancement (Theberge, 1981).

In national sport organizations, 13 women, 18% of the total, were presidents or chairs; in Ontario, the figure was 16% in 1983. A 1980 survey, distinguishing between board and committee membership, found female representation to be 20% and 30% respectively, a difference which reflected the usual concentrations of women in lower levels of administration (Lewis, 1980).

The structure of the executive and/or board of directors appears to be a factor in sex distribution. For example, in the Canadian Amateur Hockey Association, one of the board positions is Director of Female Hockey, and the Canadian Cycling Association has the provisions of Vice President, Women's Bicycling Voice. These provisions facilitate the involvement of women in administering traditionally male sports, where they might not otherwise be elected to office. Statistics from 1985 show that 23 NSOs (30% of the total) were run by boards with no female representation, despite the fact that almost all NSOs administer sport programs for both sexes. Two boards were composed entirely of women, while seven had a higher percentage of women than men. Overall, 21% of board members and 31% of other volunteers were female. The 1988 figures showed an increase to 26% of board members.

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Female scholars in physical education

A 1977-1978 survey of academic women in physical education facilities showed a total of 23%, concentrated in the ranks of assistant professor; over half held master's degrees while only 19% held doctorates (Hall and Richardson, 1982). As in other areas of sport, the outcome is a serious shortage of role models and mentors for female students and academics. Furthermore, the strong network of male academics in this field entrenches existing patterns: of nine sport journals in publication in 1984, none had a woman as editor, and women comprised only 14% of editorial boards. Authorship of published manuscripts reflected a similar pattern: the Journal of Sport Psychology averaged 24% female authors from 1981 to 1983 (Safrit, 1984). Of 200 articles in the first 12 volumes of International Review of Sports Sociology, three concerned female athletes specifically, 23 general studies treated sex as an independent variable, and only eight female authors were contributors (Carroll, 1980) (see Feminist Theory and Sex Equality in Sport, p. 15).

In a study of 19 journals from 1979 to 1983, Schuiteman and Knoppers (1987) found that those with a strong female representation on their editorial boards tended to publish more articles by women. Keyes (1988) reported on the conditions in Canadian institutions and infrastructures that perpetuate male control over sport-related research.

In discussions of female scholars' experiences, it is important to consider whether change is best effected by women's adherence to existing male definitions of academic success, which tend to place higher priority on research and publishing than on advocacy and teaching. As other women in sport-related careers have found, workplace conditions and expectations in the academy, based on hierarchical, bureaucratised and highly competitive models, are often so debilitating that it becomes difficult for feminists to work towards change in such settings.

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Withdrawal and retirement from sport

As in other areas in the sociology of sport, research on withdrawal and retirement has, for the most part, involved male athletes. Moreover, few studies have distinguished between "dropouts" and "retirees". Since women's life cycles and career patterns, both inside and outside of sport, probably take different forms to men's, conclusions based on men's experiences do not necessarily hold true for women (Perun and Bielby, 1981).

A discussion of retirement should first consider the barriers to women's full sporting participation, ranging from restrictive societal attitudes to discriminatory practices in sport organizations, which constrain women's careers in sport in ways rarely experienced by men. The opportunities open to retiring female athletes vary widely from sport to sport, depending primarily on the traditional view of the activity as masculine or feminine. The retiring figure skater, for example, will probably have more career options in her sport than the retiring track and field athlete.

In addition to the structural barriers faced by women in sport, the particular circumstances of women's lives have implications for their retirement. Many women have domestic and child care responsibilities that make it difficult to continue a demanding training program or to pursue a career in coaching or sport administration, which involves long hours and out-of-town travel. Alternative living arrangements, which many women have been exploring in recent years, may alleviate some of these problems, making it possible to share domestic and child care duties more equitably. The circumstances affecting female athletes' career decisions have been investigated by Hall (1987) and Kirby (1986).

There has recently been some debate concerning the adequacy of various theoretical approaches to the question of retirement. With growing scholarly interest in the field of gerontology, some sport sociologists have examined athletes' retirement in the light of social gerontological theory, including disengagement, activity and continuity theory.

The disengagement theory, which proposes that older athletes and the sporting establishment will mutually withdraw from one another, in order to make way for younger athletes, has been criticized on many accounts. For example, in a 1981 review of the literature, Rosenberg pointed out that this is a structural-functionalist theory which gives priority to the smooth operation of the sport system while failing to consider the retiring athlete's achievement orientation or her/his need to replace the athletic role with another occupational role (Rosenberg, 1981). However, it appears that some researchers use terms such as "disengagement" or "desocialization" without necessarily espousing the structural-functionalist approach.

An alternative theoretical approach which may be relevant to female retirement is the activity or substitution theory, which proposes that the athlete will replace her/his role as participant with another role in sport — as a coach or manager, for example, or in other spheres of activity. A similar theoretical explanation identifies the individual's attempts to maintain continuity in lifestyle. Thus, in the sport context, withdrawal or retirement may be viewed simply as a transition to another life stage or role, rather than as having all the negative connotations of disengagement or desocialization. However, both the activity and the continuity theories fail to acknowledge and explain instances of role disruption, discontinuity and adjustment problems experienced by athletes, as Kirby pointed out in her review of the literature (Kirby, 1986).

In the specific case of female athletes, these theories appear to assume that women are in a position to make deliberate and rational career choices, whereas the situation for most women in a society stratified by sex, class and race/ethnicity is far more complex. In summary, it would appear that no existing theory adequately encompasses all the complexities of female athletes' retirement.

Women's retirement may be precipitated by a variety of individual and situational factors — injury, psychological burnout or personal, education or career plans — often working together in a way that makes conventional quantitative research methods inadequate. Thus, longitudinal studies, open-ended questionnaires and interviews will probably be needed in the investigation of women's careers in sport (see Feminist research methods, p. 13).

Girls' and women's motivation and expectations upon entering sport, as well as their experiences as athletes, all have a bearing on the decision to withdraw or retire, and there are sex differences in all these areas (Greendorfer, 1985) (see Socialization of Girls and Women in Sport, p. 39). Given the youth orientation of many

female sports, age is another important variable. In gymnastics, for example, retirement may occur during adolescence. In this case, if peer coaching is already an established pattern in the club, the transition to coaching may proceed with little interruption. Conversely, the frustration of observing prepubescent gymnasts performing techniques that the taller, heavier adolescent girl can no longer attempt may prove a deterrent to her continued affiliation with gymnastics (Feigley, 1984).

Blinde, E.M. et al. Continuing or dropping out of sport: the intercollegiate athlete. *Arena review 11 (2), Nov 1987, 66-78.* SIRC/CDS, SIRLS

Blinde, E.M.; Greendorfer, S.L. A reconceptualization of the process of leaving the role of competitive athlete. *International review for the sociology of sport 20 (1/2), 1985, 87-94.* SIRC/CDS, SIRLS

Broom, E.F. Innovations in international sport: a comparative analysis of women's world championships field hockey teams. *In, Pooley, J.C., and C.A. Pooley eds., Proceedings of the Second international seminar on comparative physical education and sport. Halifax: Dalhousie University, 1982, p. 345-361.* SIRLS, SIRC/CDS

Brown, B.A. Factors influencing the process of withdrawal by female adolescents from the role of competitive age group swimmer. *Sociology of sport journal 2 (2),1985, 111-129.* SIRC/CDS, SIRLS

Butcher, J. Membership turnover in women's field hockey. *Australian journal of sport sciences 3(2), 1983, 28-32.* SIRC/CDS, SIRLS

Caccese, T.M.; Mayerberg, C.K. Gender differences in perceived burnout of college coaches. *Journal of sport psychology 6(3), 1984, 279-288.* SIRC/CDS

Curtis, J.E.; White, P.G. Age and sport participation: decline in participation or increased specialization with age? *In, Theberge, N. and Donnelly, P. eds., Sport and the sociological imagination. Fort Worth, Tex.: Texas Christian University Press, 1984, p. 273-293.* SIRC/CDS, SIRLS

Feigley, D.A. Psychological burnout in high-level athletes. *Physician and sportsmedicine 12(10), 1984, 108-112;115-119.* SIRC/CDS, SIRLS

Greendorfer, S.L.; Blinde, E.M. "Retirement" from intercollegiate sport: theoretical and empirical considerations. *Sociology of sport journal 2 (2), 1985, 101-110.* SIRC/CDS, SIRLS

Hall, M.A. Women Olympians in the Canadian Sport Bureaucracy. *In, Slack, T. and Hinings, C.R. eds., The organization and administration of sport. London, Ont.: Sport Dynamics, 1987, p. 101-126.* SIRC/CDS

Kirby, S. High performance female athlete retirement. Ph.D. dissertation, University of Alberta, 1986.

McPherson, B.D. Sport participation across the life cycle: a review of the literature and suggestions for future research. *Sociology of sport journal 1(3), 1984, 213-230.* SIRC/CDS, SIRLS

Moriarty, F.J. Victims of the kiddie kult. *Women's sports 5 (4), 1983, 60;58.* SIRC/CDS

Ogilvie, B.C.; McGuire, L.G. How competition affects elite women swimmers. *Physician and sportsmedicine 8(6), 1980, 113-116.* SIRC/CDS, SIRLS

Ostrow, A.C. et al. Age role expectations and sex role expectations for selected sport activities. *Research quarterly 52(2), 1981, 216-227.* SIRC/CDS, SIRLS

Perun, P.; Bielby, D. Towards a model of female occupational behavior: a human development approach. *Psychology of women quarterly 6 (2), 1981, 234-252.*

Prus, R. Career contingencies: examining patterns of involvement. *In, Theberge, N. and Donnelly, P. eds., Sport and the sociological imagination. Fort Worth, Tex.: Texas Christian University Press, 1984, p. 297-317.* SIRC/CDS, SIRLS

Rosenberg, E. Gerontological theory and athletic retirement. *In, Greendorfer, S.L. and Yiannakis, A. eds., Sociology of sport: diverse perspectives. West Point, N.Y.: Leisure Press, 1981, p. 118-126.* SIRC/CDS, SIRLS

Scott, L. Career contingencies - the social construction of continuing involvements in women's intercollegiate basketball. *North American Society for the Sociology of Sport Conference, Unpublished paper, 1982.*

Chapter Three

Psychological Considerations

Psychological Considerations

A feminist perspective in psychology

Psychology has a long tradition of proving the differentness and, thus, the inferiority of females. The male has generally been seen as the norm and the female as the exception. This is not to suggest that females have been seriously considered in psychological research: over two-thirds of the research on human subjects has been conducted on males, and has been generalized to all humans. These biases are reflected in evaluative interpretations of research findings. For example, environmental responsiveness, a trait more characteristic of females than males, is devalued by the label "field dependence," whereas the male pattern of ignoring environmental cues is described by the more positive term "field independence" (Wine, 1982; Spender, 1980).

The increasing attention paid to questions of sex difference in recent psychological research is not necessarily a progressive step. Studies reporting *no* sex differences tend not to be published, while the focus on positive findings serves to entrench the assumption that biological differences between the sexes account for psychological differences, ignoring the possibility that these patterns may have other origins — social-cultural or environmental, for example — or may be due to chance. In other words, psychologists have treated "sex" as the independent variable, and have attributed causality to it, while failing to define what constitutes "sex" (Sherif, 1979).

There is little, if any, provision in psychological models of human behaviour for female characteristics, a shortcoming which is especially glaring in theories of moral development such as that proposed by Kohlberg in the 1960s and based on his research on adolescent males. Gilligan (1982) is one of several feminist psychologists to question the validity of Kohlberg's model in explaining female moral reasoning, which, she proposes, is grounded more on the ethic of care than on the ethic of individual rights and self-interest. For moral questions within sport — issues of athletes' rights, fair play, aggression, and violence — the feminist perspective is particularly important.

Psychological research has tended to rely on the decontextualized, controlled experiment, often failing to investigate human relationships, social interaction and the development of individuals in the human context. Although research in social psychology considers social class and race/ethnicity as independent variables, many of these studies employ the same kinds of quantitative, laboratory-based methods as other branches of psychology. The assumption that human behaviour may be accurately translated into figures on a scale or yes/no answers on a questionnaire leads to further problems. Respondents have no way of indicating their rationale, and subsequent interpretations of findings may be distorted by sex bias. A proposed alternative approach in feminist research would use methods which have proven effective in sociological and anthropological research, such as interviews and observation, while maintaining a collaborative, non-exploitative relationship between researcher and researched (Wine, 1982). The following discussion attempts to cite only those studies which tend towards a qualitative, naturalistic approach, although it has not always been possible to do so.

Genova, J. Women and the mismeasure of thought. *Hypatia 3 (1), 1988, 101-117.*

Gilligan, C. In a different voice. Cambridge: Harvard University Press, 1982.

Lykes, M.B.; Stewart, A.J. Evaluating the feminist challenge to research in personality and social psychology, 1963-1983. *Psychology of women quarterly 10 (4), 1986, 393-412.*

Miller, J.B. Presenting psychological problems. *Occasional papers, Ontario Institute for Studies in Education, 1986.*

Sherif, C. Bias in psychology. *In, Sherman, J. and Beck, E. eds., The prism of sex. Madison: University of Wisconsin Press, 1979, p. 93-133.*

Spender, D. Man made language. London: Routledge & Kegan Paul, 1980.

Stark-Adamec, C.; Kimball, M. Science free of sexism: a psychologist's guide to the conduct of non-sexist research. *Canadian psychology 25 (1), 1984, 23-34.*

Ussher, J. The psychology of the female body. New York: Routledge, 1989.

Weisstein, N. Psychology constructs the female. *In, Gornick, V. and Moran, B. eds., Woman in sexist society. New York: Basic Books, 1971, p. 207-224.*

Wine, J. Gynocentric values and feminist psychology. *In Miles, A. and Finn, G. eds., Feminism in Canada: from pressure to politics. Montreal: Black Rose Books, 1982, p. 67-87.*

Wine, J. Towards a feminist standpoint for psychology. *Popular feminism papers, Ontario Institute for Studies in Education, 1985.*

Personality Variables of Female Athletes

As Whitson (1979) pointed out in his critique of personality research in sport psychology, personality tests reflect and reinforce the assumptions that an individual's personality is her/his "nature," and that institutional and organizational forms are also "natural". Thus, test instruments are used to develop personality profiles of those who have succeeded as athletes or coaches in sport as it is presently constituted. In other words, the personalities of male athletes and male coaches come to be seen as the ideal. Another major shortcoming of this approach is its failure to consider the processes of socialization into and through sport. The reward structure within highly competitive male sport, for example, encourages personality traits that are antithetical to values like friendship and cooperation.

As in sex-role research in social psychology, sport psychologists have directed considerable effort towards proving that female athletes differ significantly from the general female non-athletic population, with femininity being a fundamental issue in both areas of research. In personality research, for example, the Edwards Personal Preference Schedule, in use since 1963 in numerous studies of female athletes, lists "heterosexuality" along with such items as aggression, autonomy and nurturance as a relevant, and measurable, personality trait (Gravelle et al., 1982). It seems unlikely that such an item would be included in a scale designed to describe the personalities of ballet dancers, or other unquestionably "feminine" populations (see Sport, Gender and Sexuality, p. 48).

On the general issue of sport and personality, it has been suggested that sports *select for*, rather than *create*, specific personality traits. For example, it may be argued that more aggressive persons will gravitate towards contact or combat sports, more sociable persons to team sports, and more dominant persons to individual sports. It seems likely that there is a two-way process in operation: individuals with these tendencies, having chosen appropriate sports, will then experience varying degrees of reinforcement for these attributes, depending on their level of involvement in the sport. Mediating these selection and reinforcement processes, however, are social-cultural factors which have sex-differentiated effects, and so it cannot be assumed that males and females in the same sport will display the same personality traits.

Two studies (Kleiber and Hemmer, 1981; Valliant et al., 1981) investigated athletes' and non-athletes' locus of control, that is, the extent to which an individual feels in control of her destiny. A high level of control is indicated by an internal locus, a low level by an external locus. Reflecting similar assumptions to those of the role conflict literature, Kleiber and Hemmer hypothesized that females in organized sport required the greatest reserves of inner-directedness to challenge sex-role stereotypes, and their findings provided partial support for this thesis. These females were significantly more internal than females who participated for recreation only. On the other hand, Valliant et al. (1981) noted that most studies had shown no significant differences between athletes and non-athletes in locus of control, a finding which their study replicated. However, they did find a significant group effect on the personality trait termed "dominance," as well as a significant sex effect on the trait termed "venturesome": athletes were more dominant than non-athletes, and female athletes were more venturesome than male athletes.

There are conflicting implications of such findings. On the one hand, it may be desirable to show that female athletes display the same range of personality traits as the general female population and, thus, to debunk some of the myths surrounding sportswomen. It may also prove useful

to show the potential beneficial effects of sport for the so-called normal female personality in terms of self-sufficiency or achievement. On the other hand, there is evidence that females whose personalities differ from the so-called norm frequently experience success and fulfilment in their sporting participation, and this needs to be recognized by parents, teachers and others as an acceptable, not an abnormal, pattern of behaviour.

Daino, A. Personality traits of adolescent tennis players. *International journal of sport psychology 16 (2), 1985, 120-125.* SIRC/CDS, SIRLS

Folkins, C.H.; Sime, W.E. Physical fitness training and mental health. *American psychologist 36(4), 1981, 373-389.* SIRC/CDS, SIRLS

Frazier, S.E. Introversion-extraversion measures in elite and nonelite distance runners. *Perceptual and motor skills 64 (3), 1987, 867-872.* SIRC/CDS, SIRLS

Freedson, P.S. et al. Physique, body composition, and psychological characteristics of competitive female body builders. *Physician and sportsmedicine 11(5), 1983, 85-90;93.* SIRC/CDS, SIRLS

Gravelle, L. et al. Personality profiles of the Canadian Women's National Volleyball Team. *Volleyball technical journal 7(2), 1982, 13-17.* SIRC/CDS, SIRLS

Gundersheim, J. Comparison of male and female athletes and nonathletes on measures of self-actualization. *Journal of sport behavior 5(4), 1982, 186-201.* SIRC/CDS, SIRLS

Horvat, M. et al. A comparison of the psychological characteristics of male and female able-bodied and wheelchair athletes. *Paraplegia 24 (2), 1986, 115-122.* SIRC/CDS, SIRLS

Jerome, W.C. Evaluation of personality changes in long term participants in the Seneca Sports School. *In, Wankel, L.M. and Wilberg, R.B. eds., Psychology of sport and motor behavior: research and practice. Alberta: University of Alberta, Dept. of Recreation and Leisure Studies, 1982, p. 238-246.* SIRLS, SIRC/CDS

Joesting, J. Comparison of personalities of athletes who sail with those who run. *Perceptual and motor skills 52(2), 1981, 514.* SIRC/CDS, SIRLS

Kleiber, D.A. Sex differences in the relationship of locus of control and recreational sport participation. *Sex roles 7(8), 1981, 801-810.* SIRLS

Morgan, W. P. et al. Psychological characterization of the elite female distance runner. *International journal of sports medicine 2 (8), 1987, 124-131.* SIRC/CDS

Ogilvie, B. Psychological consistencies within the personality of high-level competitors. *JAMA 205 (11), 9 Sept 1968, 156-162.*, SIRLS

Ogilvie, B.C.; McGuire, L.G. How competition affects elite women swimmers. *Physician and sportsmedicine 8(6), 1980, 113-116.* SIRC/CDS, SIRLS

Penny, G.D.; Rust, J.O. Effect of a walking-jogging program on personality characteristics of middle-aged females. *Journal of sports medicine and physical fitness 20(2), 1980, 221-226.* SIRC/CDS, SIRLS

Reeds, G.K. The relationship of personality and anxiety to performance among elite male and female gymnasts. *CAHPER journal 51 (7), 1985, 4-7.* SIRC/CDS

Renfrow, N.E.; Bolton, B. Physiological and psychological characteristics associated with women's participation in intercollegiate athletics. *Perceptual and motor skills 53(1), 1981, 90.* SIRC/CDS

Schindler, T.M.; Waters, M. Athletic involvement and aspects of self-actualization. *Journal of sport behavior 9 (2), 1986, 59-69.* SIRC/CDS, SIRLS

Starkes, J.L. Skill in field hockey: the nature of the cognitive advantage. *Journal of sport psychology 9 (2), 1987, 146-160.* SIRC/CDS

Valliant, P.M. et al. Personality in athletic and non-athletic college groups. *Perceptual and motor skills 52(3), 1981, 963-966.* SIRC/CDS, SIRLS

Whitson, D.J. Research methodology in sport sociology. Ottawa: CAHPER, 1979. SIRC/CDS, SIRLS

Competition Anxiety and Performance

Since undue competition anxiety adversely affects athletic performance, recent psychological research has given considerable attention to stress management programs for athletes, including hypnosis and visuo-motor behaviour rehearsal (VMBR), a technique which combines visual imagery and relaxation. There is no evidence of significant sex differences either in the degree of competition anxiety or in the effectiveness of stress management programs in reducing anxiety and improving performance (Smith, 1983; Hall and Erffmeyer, 1983; Seabourne et al., 1984; Lanning and Hisanaga, 1983).

Hall, E.G.; Erffmeyer, E.S. Effect of visuo-motor behavior rehearsal with videotaped modeling on free throw accuracy of intercollegiate female basketball players. *Journal of sport psychology 5(3), 1983, 343-346.* SIRC/CDS

Lanning, W.; Hisanaga, B. A study of the relation between the reduction of competition anxiety and an increase in athletic performance. *International journal of sport psychology 14(4), 1983, 219-227.* SIRC/CDS, SIRLS

Lee, V.C. Peak performance: will you recognize it when it happens? *Melpomene report 4 (3), 1985, 4-7.* SIRC/CDS

Reeds, G.K. The relationship of personality and anxiety to performance among elite male and female gymnasts. *CAHPER journal 51 (7), 1985, 4-7.* SIRC/CDS

Seabourne, T. et al. Effect of individualized practice and training of visuo-motor behavior rehearsal in enhancing karate performance. *Journal of sport behavior 7(2), 1984, 58-67.* SIRC/CDS, SIRLS

Smith, T. Competition trait anxiety in youth sport: differences according to age, sex, race and playing status. *Perceptual and motor skills 57(3) Pt 2, 1983, 1235-1238.* SIRC/CDS, SIRLS

Exercise and Self-Concept

This is a popular area of investigation within sport psychology. A bibliography compiled in 1981 predicted that the listing would include 1,000 references by the beginning of 1983 (Sachs, 1982). As in other psychological research, however, female subjects have not always been studied, nor have sex differences, or the absence of sex differences, always been reported. Folkins and Sime (1981) provided a review of the early research on the effects of exercise on psychological variables such as perception, body image, self-concept, mood and social adjustment in males and females. Of these variables, they noted that research on self-concept variables reported the most significant positive results.

Among the psychological changes observed in women as a result of physical training is an improvement in some self-concept characteristics. Penny and Rust (1980) investigated the effects of a walking-jogging program on middle-aged women, finding improvements in self-satisfaction and self-acceptance. Other studies showed that physiological changes were related to psychological changes: changes in body composition (weight loss), strength and aerobic capacity correlated with improved self-esteem, especially in relation to the physical self (self-image) (Brown et al., 1982; Trujillo, 1983; Eide, 1982).

Jasnoski et al. (1981) found that women in an aerobic exercise class reported improvements both in physical areas, such as walking and running performance, and non-physical areas such as frustration tolerance. However, correlations between changes in aerobic capacity and changes in self-perceived abilities and confidence were inconsistent, suggesting that personal or social factors, and not only physical changes, also brought about changes in self-concept. As Ransford (1982) pointed out, other possible determinants of the positive effects of exercise

include cognitive factors (feelings of mastery or achievement), social factors (social interaction) or the "time-out" value of a leisure pursuit.

Another approach to the question of self-concept found in psychological literature investigates the relationship between self-confidence and estimates of performance. Lack of confidence and female modesty were proposed as explanations for women's low performance estimates in two studies (Corbin et al., 1983; Corbin, 1981). The 1981 study also found that females were more likely than males to lower their estimates following a contest against a skilled opponent. This tendency, termed an "unstable" female expectation by Corbin, might also be described as "realistic", as Corbin et al. observed in their later study. A similar study of young female gymnasts found that their estimates of competition performance were more accurate predictors than their previous scores, but that coaches' estimates were even more accurate (Lee, 1982).

A difficulty with these approaches to self-concept, as with other branches of sport psychology research, is the implied mind-body duality. Although most investigators recognize that a relationship exists between physiological and psychological state, many overlook its dialectical nature, that is, the ongoing interaction between mind and body. Psychological state, determined in part by past successes and failures, affects one's sporting performance, at the same time as physiological state, determined in part by past training and performance, affects one's mental approach to future sporting activities. Of course, these complex processes do not lend themselves readily to the controlled experimental approach.

Balogun, J.A. The interrelationships between measures of physical-fitness and self-concept. *Journal of human movement studies 13 (5), 1987, 255-265.* SIRLS

Beuter, A. et al. Adjustments to high altitude trekking among women. *Sportwissenschaft 18 (3), 1988, 296-308.* SIRC/CDS

Birrell, S. The psychological dimensions of female athletic participation. *In, Boutilier, M.A. and SanGiovanni, L. eds., The sporting woman. Champaign, Ill: Human Kinetics Publishers, 1983, p. 49-91.* SIRC/CDS, SIRLS

Brown, E.Y. et al. Self-concept changes in women as a result of training. *Journal of sport psychology 4(4), 1982, 354-363.* SIRC/CDS, SIRLS

Corbin, C.B. Self-confidence of females in sports and physical activity. *Clinics in sports medicine 3(4), 1984, 895-908.* SIRC/CDS, SIRLS

Corbin, C.B. et al. Sex differences in performance estimates: female lack of confidence vs. male boastfulness. *Research quarterly 54(4), 1983, 407-410.* SIRC/CDS, SIRLS

Corbin, C.B. Sex of subject, sex of opponent, and opponent ability as factors affecting self-confidence in a competitive situation. *Journal of sport psychology 3(4), 1981, 265-270.* SIRC/CDS, SIRLS

Eickhoff, J. et al. Selected physiological and psychological effects of aerobic dancing among young adult women. *Journal of sports medicine and physical fitness 23(3), 1983, 273-280.* SIRC/CDS, SIRLS

Eide, R. Relationship between body image, self-image and physical activity. *Scandinavian journal of social medicine Suppl. 29, 1982, 109-112.* SIRC/CDS, SIRLS

Folkins, C.H.; Sime, W.E. Physical fitness training and mental health. *American psychologist 36(4), 1981, 373-389.* SIRC/CDS, SIRLS

Jaffee, L. Focus on physical activity. *Melpomene report 4 (3), 1985, 9-12.* SIRC/CDS

Jasnoski, M.L. Exercise, changes in aerobic capacity, and changes in self-perceptions: an experimental investigation. *Journal of research in personality 15(4), 1981, 460-466.* SIRLS

Kalliopuska, M. Relation of empathy and self-esteem to active participation in Finnish baseball. *Perceptual and motor skills 65 (1), 1987, 107-113.* SIRC/CDS

Lee, C. Self-efficacy as a predictor of performance in competitive gymnastics. *Journal of sport psychology 4(4), 1982, 405-409.* SIRC/CDS, SIRLS

Marsh, H.W.; Peart, N.D. Competitive and cooperative physical fitness training programs for girls: effects on physical fitness and multidimensional self-concepts. *Journal of sport & exercise psychology 10 (4), 1988, 390-407.* SIRC/CDS, SIRLS

Penny, G.D.; Rust, J.O. Effect of a walking-jogging program on personality characteristics of middle-aged females. *Journal of sports medicine and physical fitness 20(2), 1980, 221-226.* SIRC/CDS, SIRLS

Plummer, O.K.; Koh, Y.O. Effect of "aerobics" on self-concepts of college women. *Perceptual and motor skills 65 (1), 1987, 271-275.* SIRC/CDS, SIRLS

Porter, K. Psychological characteristics of the average female runner. *Physician and sportsmedicine 13 (5), 1985, 171-175.* SIRC/CDS, SIRLS

Ransford, C.P. A role for amines in the antidepressant effect of exercise: a review. *Medicine and science in sports and exercise 14 (1), 1982, 1-10.* SIRC/CDS

Rao Prakasa, V.V.; Overman, S.J. Psychological well-being and body image: a comparison of black women athletes and nonathletes. *Journal of sport behavior 9 (2), 1986, 79-91.* SIRC/CDS, SIRLS

Rindskopf, K.; Gratch, S. Women and exercise: a therapeutic approach. *Women and therapy 1, Wihter 1982, 15-26.*

Sachs, M.L. Change agents in the psychology of running. *In, Sports medicine - sports science: bridging the gap. Lexington, Mass.: Collamore Press, 1982, p. 17-26.* SIRC/CDS, SIRLS

Schindler, T.M.; Waters, M. Athletic involvement and aspects of self-actualization. *Journal of sport behavior 9 (2), 1986, 59-69.* SIRC/CDS, SIRLS

Schumaker, J.F. et al. Self-concept, academic achievement, and athletic participation. *Perceptual and motor skills 62 (2), 1986, 387-390.* SIRC/CDS, SIRLS

Skrinar, G.S. et al. Effects of endurance training on body-consciousness in women. *Perceptual and motor skills 62 (2), 1986, 483-490.* SIRC/CDS, SIRLS

Smith, T.L. Self-concepts of youth sport participants and nonparticipants in grades 3 and 6. *Perceptual and motor skills 62 (3), 1986, 863-866.* SIRC/CDS, SIRLS

Trujillo, C.M. The effect of weight training and running exercise intervention programs on the self-esteem of college women. *International journal of sport psychology 14(3), 1983, 162-173.* SIRC/CDS, SIRLS

Young, M.L. Estimation of fitness and physical ability, physical performance, and self-concept among adolescent females. *Journal of sports medicine and physical fitness 25 (3), 1985, 144-150.* SIRC/CDS, SIRLS

The Effects of Exercise on Anxiety and Depression

A discussion of the effects of aerobic exercise on women's anxiety and depression needs to be set in the broader context of women's mental health as seen from a feminist perspective. Bernardez (1984) has pointed out that the socialization of women within a specific society determines what is normal "feminine" behaviour. Additionally, women's social status, and the existence of sex discrimination in employment and in education, have implications for women's self-image and economic power and, thus, for their mental health.

A condition which therapists label "depression" is the most prevalent psychological disorder among women. It has been argued that female socialization into "learned helplessness" and taboos on anger and aggressive behaviour are, to a great extent, responsible for this trend. Aware of their powerlessness in a male-dominated society, women are not even permitted expression of their anger because it is an emotion seen as incompatible with the feminine sex role. Depression is frequently the outcome of this no-win situation. Furthermore, depression is more prevalent among married women, who typically assume the responsibility for the physical and emotional nuturing of all family members (Bernardez, 1984).

In this context, it is not surprising that a physical activity such as running has positive effects on a woman's mental health, through her achieving a measure of control over her body and her taking time for herself. The public nature of running, too, symbolizes a rejection of the passive, unobtrusive feminine role, and thus may contribute to the overall feeling of achievement and well-being experienced.

Several studies indicate that aerobic exercise has these positive effects on women (Harris, 1981; Joesting, 1981; Hartz and Wallace, 1982; Gondola and Tuckman, 1982, 1983; Doyne et al., 1983). A 1984 study claimed to be the first controlled evidence concerning the effects of strenuous exercise on depression, reporting that women in an aerobic exercise program showed reliably greater decreases in depression than subjects in the placebo or the no-treatment condition (McCann and Holmes, 1984).

The body's biochemical responses to exercise may account in part for the alleviation of depression. There is evidence that deficits of certain biochemical compounds within the brain are involved in depression. Aerobic exercise stimulates cerebral blood flow and increases amine and endorphin production, enhancing synaptic transmission in the central nervous system. As recently as 1981, however, Folkins and Sime dismissed physiological explanations for psychological change as "simplistic and underdeveloped". A 1982 review of the research in this area showed that the data were inconclusive, but noted the interrelation of physiological, psychological and cognitive factors in the effects of exercise on depression (Ransford, 1982). Two 1983 reviews of the literature concluded that these theories, while not yet fully substantiated, were plausible and merited further research (Weinstein and Meyers, 1983; Lawrence 1983). It appears, however, that research in this area has not considered qualitative differences in men's and women's depression which may have implications for exercise therapy.

Bernardez, T. Prevalent disorder of women: attempts toward a different understanding and treatment. *Women and therapy 3 (1), 1984, 17-27.*

de Vries, H.A. Tranquilizer effect of exercise: a critical review. *Physician and sportsmedicine 9(11), 1981, 46-49;52-53;55.* SIRC/CDS

Doyne, E.J. et al. Aerobic exercise as a treatment for depression in women. *Behavior therapy 14(3), 1983, 434-440.* SIRC/CDS

Folkins, C.H.; Sime, W.E. Physical fitness training and mental health. *American psychologist 36(4), 1981, 373-389.* SIRC/CDS, SIRLS

Gondola, J.C.; Tuckman, B.W. Extent of training and mood enhancement in women runners. *Perceptual and motor skills 57(1), 1983, 333-334.* SIRC/CDS

Gondola, J.C.; Tuckman, B.W. Psychological mood state in "average" marathon runners. *Perceptual and motor skills 55(3) Part 2, 1982, 1295-1300.* SIRC/CDS, SIRLS

Harris, M.B. Runners' perceptions of the benefits of running. *Perceptual and motor skills 52(1), 1981, 153-154.* SIRC/CDS, SIRLS

Hartz, G.W. et al. Effect of aerobic conditioning upon mood in clinically depressed men and women: a preliminary investigation. *Perceptual and motor skills 55(3) Part 2, 1982, 1217-1218.* SIRC/CDS

Joesting, J. Running and depression. *Perceptual and motor skills 52(2), 1981, 442.* SIRC/CDS, SIRLS

Lawrence, R.M. Psychological aspects of exercise. *In, Bove, A.A., and Lowenthal, D.T. eds., Exercise medicine: physiological principles and clinical application. New York: Academic Press, 1983, p. 335-346.* SIRC/CDS

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Exercise Behaviour

The term compliance, suggestive of the behavioural psychology approach, is used in much of the literature on exercise therapy in the treatment of physical and mental health problems (see Physical Activity and General Health, p. xxx). There is also considerable research dealing with normal populations, investigating the factors which contribute to continued regular physical activity and to drop-out. It has been found that initial involvement is related to self-motivation, attitudes towards physical activity, self-perceptions of ability and feelings of health responsibility. Since regular exercise is likely to enhance these attitudes and perceptions, they are also important factors in an individual's continued involvement (Riddle, 1980; Dishman, 1980; Sonstroem, 1982). Additional factors include freedom from injuries, support and role model functions provided by significant others (family and friends), convenient location of the exercise facility and the attainment of exercise objectives (Sachs, 1982a, 1982b). Although males and females were included in the studies cited here, little attention was given to the matter of sex difference, and the variables of class and race/ethnicity were not fully investigated. A recent study by Laberge et al. (1984) has investigated these variables more fully.

The concept of "positive addiction" was proposed by Glasser in 1976 and used widely to justify regular physical activity, in particular the training regimens of distance runners. By 1979, the possibility of "negative addiction" was being considered in psychological research, and the ensuing debate between runners and non-runners has persisted (Vaughan, 1982; Sachs, 1982a). Morgan (1981) described cases of negative addiction in which individuals required daily exercise in order to cope, and showed withdrawal symptoms — anxiety, guilt, depression — if they were unable to exercise. A 1983 study reported some significant sex differences, with female marathoners scoring higher on measures of negative addiction and withdrawal, although it was noted that females may be more willing than males to report perceptions of feelings (Summers et al., 1983). A 1977 study cited by Sachs (1982b) reported an increased divorce rate among marathon runners, but a casual relationship was not established. The reported links between running and strain on marital relationships should be interpreted with caution: a woman's commitment to a training program may be a manifestation, not a cause, of her decision to direct some time and energy away from family members and towards her own interests and goals.

Recent studies continue to show significant differences between males' and females' motivation, interests, values, priorities and goals in sport and physical activity. Overall, girls and women tend to value the social experience (fun and friendship) and the health benefits more than boys and men, who enjoy the competitive dimension. Most of these studies use quantitative methods and do not investigate the reasons for these differences, nor do they show how these differences are actually played out in the sport context. However, related research on peer influence on sport socialization provides further insights (see Peers, p. 41).

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Moral Issues: Aggression, Rule-Breaking and Violence

On the general question of women and social violence, Smith (1983) presented evidence in partial support of the claim that the female rate was rising faster than the male, and proceeded to discuss some possible explanations for this trend. Firstly, the "equal opportunity" hypothesis proposes that increased freedom and access to social positions formerly reserved for males have provided females with more opportunities for violence. In the sport context, it may be argued that increased female participation in contact and combat sports over the last decade has given girls and women more scope for body contact, and thus for violence. However, Smith concluded that there was insufficient research to confirm or refute this claim. Furthermore, the mediating effects of class, race and ethnicity have yet to be investigated.

An alternative explanation for escalating female social violence is the "female masculinity" hypothesis, which proposes that this trend is a result of the masculinization of women, with contact sport serving as one agent in the process. High scores on a masculinity scale were found to have a significant relationship to violent acts in two 1979 studies, although this finding alone does not prove a causal relationship (Smith, 1983). A similar kind of explanation, in reverse, has been proposed by some proponents of the single-sex approach. Sport run by women, for women, it is argued, would not be as violent (or as elite or competitive) as male sport, presumably because of "feminine" qualities that make females more moral, or more cooperative, than males. Such explanations suggest stereotypical assumptions of masculinity and femininity, ignoring the androgynous nature of both the male and female personality.

Pilz has pointed out that the greatest growth areas in female sport, including the newer Olympic events for women, have been in activities which permit expressive violence (violent acts allowed by the rules) and in sports with a high incidence of instrumental violence (violent acts which violate the rules); examples include basketball, handball, field hockey, soccer and football (Pilz, 1982). These two types of violence may also be termed aggressive and rule-breaking.

Data on female participation rates from the Federal Republic of Germany and from North America lend some support to Pilz's claim of escalating female aggression, although the removal of formal barriers to female participation, rather than female taste for expressive violence, might account for these trends in contact sports. Investigating women's field hockey, an Irish study showed greater aggression at higher levels of competition. On a related theme — verbal aggression — an American study documented various types of verbal abuse engaged in by opposing female rugby teams in a midwestern state (Kerr and Kelly, 1982; Sherry, 1980; Graydon, 1982).

German studies also provided evidence of instrumental violence, showing that young female soccer players, for example, engaged in as many illegal violent acts as males (Pilz, 1982). American data are not so convincing: Smith cited only a few isolated incidents of instrumental violence in women's sport reported in newspaper stories.

Research on female attitudes to rule-breaking, often taking the form of pencil-and-paper tests, is less valuable than actual observations of female sporting behaviour, but in the absence of qualitative research, this approach yields some relevant data. Questioning young German soccer players, Pilz reported that girls did not legitimize their violent acts to the same degree as boys (Pilz, 1982). Similarly, Silva's study of American college athletes and non-athletes found significant sex differences in perceptions of rule-breaking behaviour. Variables including years of in-sport socialization and level of competition were found to have a positive and linear relationship to males' perceptions of legitimacy, whereas the majority of females in all categories consistently perceived rule breaking as unacceptable (Silva, 1983). On a related issue — athletes' expectations of social justice — Duquin (1984a) found that females showed greater sensitivity than males to injustice and placed more blame on organizations responsible for unjust treatment of athletes.

Bredemeier (1983) and Duquin (1984b) took a more qualitative approach to the general question of athletes' moral perspectives; both acknowledged the insights provided by Carol Gilligan (1982) and others concerning gender-specific moral development. It has been argued that women view aggression as a threat to a safe social world because it disrupts human relationships. Therefore, they are more likely to operate on the ethic of care. The male approach is to view aggression as endemic in human relations, and thus to operate out of self-interest. For males, the structured, rule-bound aggression of a competitive situation like sport, constrained by the ethic of rules and rights, may represent a safe mode of interpersonal connection, whereas for females, it may pose a threat to this connection.

Although the clearcut sex differentiation suggested by this model is not fully borne out in sport-related research, the studies cited show that significant sex differences exist. It can be seen, too, that tendencies towards operating either out of self-interest or care are socially produced, and not innate. Male athletes' and coaches' familiarity with the world of American college sport, for example, probably accounts in part for their apparent cynicism, in comparison to the more sensitive and trusting attitudes of most females. Any explanation that ignores the learned aspects of these behaviours risks being misused by the proponents of the "separate and unequal" approach, who might well argue that females' inherent dislike of aggressive, competitive sport justifies existing inequities in funding and competitive opportunities for girls' and women's sport.

Bredemeier (1983) pointed out that conventional research approaches to moral development fail to reveal the specific rationale underlying a female athlete's perception of sport violence as illegitimate: she may be acting out of self-orientation (avoiding personal danger), normative morality (seeing violence as unsporting behaviour) or non-violent morality (protecting herself and others from harm). The open-ended questions used in Duquin's (1984b) study provide some insight into men's and women's rationale in their responses to moral dilemmas involving abuses of athletes' rights by sport establishments. Female coaches, athletes and non-athletes cited the ethic of care in 63% of responses, compared to 45% for males. Self-interest accounted for 22% of female and for 38% of male responses. Female coaches showed the greatest tendency of any group to operate on the ethic of care, while male athletes were the least likely to do so.

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Chapter Four

Physiological Considerations

Physiological Considerations

Feminist critique of science

Malestream scientific method has been the subject of numerous feminist critiques challenging the hierarchical order which gives a place of privilege to the so-called hard or objective sciences — physics, chemistry, and biology — over "soft" sciences like psychology and sociology. As Hubbard (1983) explains, human biology cannot be analyzed or understood in social isolation, but develops in reciprocal and dialectical relationships with the ways in which humans live in society.

The practice of focusing on gender as the primary or sole determinant of human biological characteristics results in a distorted or incomplete explanation of the processes responsible for differences between individuals or groups. Cross-cultural studies, for example, have shown that social-cultural variables explain many of these differences as well as, or better than, gender. Furthermore, the practice of assigning women specific social roles based on unfounded generalizations about "women's nature" has an ideological basis: it serves to exclude women from areas where their entry might threaten existing male privilege and power. Sport provides a good example of this process at work (Benston, 1982; Hubbard, 1983; Lowe, 1983; Bleier, 1984; Keller, 1985).

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Introduction

It is not possible in this chapter to deal with every aspect of physiology pertinent to women's sporting performance. Such an enterprise would require an entire book in itself, and there are other sources which adequately fulfill that function. The purpose of this chapter is to present and discuss selected topics in physiology, especially in terms of their relevance to the social-cultural issues identified in the earlier chapters, and to develop a woman-centred perspective to counter the male-centred approach and the focus on sex difference which predominates in this field.

The bibliographic sections list more specialized sources and useful review articles, especially Drinkwater (1984). A recent book, *Women, Sport and Performance: A Physiological Perspective*, (Wells, 1985) is recommended for its detailed and comprehensive review of the physiology literature (Parts I, IV and V), although it shares with much of the other work in this field a preoccupation with sex differences. A more provocative work is Kenneth Dyer's *Challenging The Men* (Dyer, 1982), which analyses biological, psychological and social-cultural factors affecting female performance in sport. (See also Dyer, 1989.)

It is almost a universal practice in this literature to compare female anatomy, physiology and performance to standards derived from male subjects. This tendency in sport-related research is not surprising, since the "swifter, higher, stronger" emphasis characterizes almost every activity currently defined as a sport in western society. If the goal of sporting performance was to excel in terms of flexibility, grace and coordination, physiology texts might well read differently, comparing male characteristics to norms based on the female ideal. Furthermore, any comparison which ignores historical and contemporary barriers to full female participation, ranging from parental restrictions on girls play to institutionalized sex discrimination in sport, is both invalid and unjust.

A changing focus is evolving among some researchers in physiology and biology. Dyer, for example, has recently investigated male and female improvement rates since the 1930s, rather than focusing exclusively on comparisons between male and female performance. He has projected that sex differences in running, swimming and cycling will disappear in the next few decades (Dyer, 1982, 1989). On the question of fairness in sporting competition, it has been argued that, at the international level, there are clear advantages to those races and ethnic groups whose members are tall. The physical requirements for basketball, volleyball and rowing, for example, disadvantage Asian, Latin American and some sub-groups of African athletes. Clearly, sex differences in height have the same disadvantaging effects (Khosla, 1983). Similarly, the notion of a world sports record implies certain preconditions related to freedom and equality which are not universally enjoyed. For example, approximately one out of every four participating countries does not send any female athletes to the Olympics. Such practices call into question the validity and the fairness of comparing male and female sports records.

To summarize, a woman-centred approach to exercise physiology requires: an interdisciplinary approach; recognition of women's own perceptions, preferences and experiences; identification and interpretation of both the presence and absence of sex differences; and the evaluation of female anatomy, physiology and performance within the female population (instead of the usual preoccupation with comparisons between the sexes). Some of the contributors to a recent text, *Women and Exercise: Physiology and Sports Medicine* (Shangold and Mirkin, eds. 1988) meet these criteria by using adaptive, multi-factor models and recognizing the interplay of biological, psychological and social-cultural factors (e.g. Katz, Malina) but others take a traditional medical approach and dismiss women's experience (see Medical Practice and the Women's Health movement, p.139).

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Physical Activity and General Health

Most of the health benefits of regular physical activity are common to both males and females: maintenance of optimal body weight and composition, prevention of coronary heart disease (CHD) and improved fat and carbohydrate metabolism. In fact, CHD, obesity, anxiety, low back pain and other conditions have been called the diseases of hypokinesis (inactivity) (Haskell and Superko, 1984; Harvey and Harvey, 1981). Since there is evidence that women lead more sedentary lives than men, there are special implications for women's health.

Although the incidence of CHD is higher for men than women, rates among women are rising, with high blood cholesterol levels, high blood pressure and cigarette smoking, particularly in combination with the use of oral contraceptives, constituting major risk factors. Recent findings show that more young females than young males are starting to smoke and that more males than females are quitting smoking. These trends account in part for the increasing incidences of CHD, as well as the obvious link to lung cancer death rates among women (Jacobson, 1981).

There is evidence of an association between improved physical fitness and a lowering of CHD risk factors in women. As well as having lower blood cholesterol levels, it has been shown that physically active women, specifically distance runners, tennis players and rowers, develop higher levels of high density lipoprotein, a major factor in protecting against CHD (Gibbons et al., 1983; Moore et al, 1983; Drinkwater, 1984). Other health benefits of exercise include lowered blood pressure and improved fat and carbohydrate metabolism (Haskell and Superko, 1984).

Although it is possible that physical activity itself may precipitate cardiovascular complications, especially in individuals with CHD, the

benefits of exercise are generally considered to outweigh the risks (Vander, 1982), The literature routinely advises pre-exercise medical examinations, but it is also acknowledged that even exercise stress testing does not identify all potential cardiac risks. Other health risks associated with physical activity are, for the most part, able to be controlled. These include heat exhaustion and orthopedic injuries (see Injuries, p. 132).

As is the case with exercise and obesity, the literature in behavioural medicine concerning exercise in the prevention of treatment of CHD and other diseases focuses on behavioural control and "problems of exercise adherence". Not surprisingly, some studies have found that social support — family or friends who also exercised — was a key factor, and that a purely psychological factor like "attitude to exercise" was not significantly related to exercise drop-out (King and Frederikson, 1984; Martin and Dubbert, 1982). It is possible, however, that the quantitative methods frequently used in psychological research to assess attitudes, beliefs and motivation fail to provide a full picture of the context for sporting participation (see Psychological Considerations p. 86).

Two recent studies (Frish et al., 1987; Wyshak et al, 1986) report a lower lifetime prevalence of breast cancers and cancers of the reproductive system, as well as a lower prevalence of benign diseases affecting the breast and reproductive system, among former college athletes compared to non-athletes. The researchers suggest that there are links between athletes' later menarche/earlier menopause (in part a result of their leanness) and the association between high risk of cancer of the breast and endometrium, and early menarche/late menopause and greater relative fatness. Low-fat diets and self-selection factors affecting athletic participation may also account in part for these trends.

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Physical Activity over the Adult Life Cycle

While it is commonly assumed that physical performance declines with age, it is possible that the decrease in regular physical activity found in both sexes over the life cycle is a more important factor than actual physical degeneration. Since preparation for lifelong physical activity begins in childhood, the prospects for elderly women are already limited. The problem is exacerbated by the traditional view that "play" is inappropriate for adults and "sport', inappropriate for females. An additional concern is the loss of status and sexual identity suffered by post-menopausal women in an ageist, sexist society. In this context, the special physical activity needs of older women are unlikely to be met (Winter, 1982; Dulude, 1978; Ostrow et al., 1981).

There is ample evidence that older women who engage in sufficiently intense levels of physical activity experience significant physiological benefits, including increased aerobic capacity, greater flexibility, reduced blood pressure and recovery time and lowered incidence of osteoporosis (Goertzen et al., 1984; Massicotte, 1981; Laerum and Laerum, 1982; Levarlet-Joye and Simon, 1983; see Osteoporosis p. 106 and p. 146). Although it is difficult to separate physiological from psychosocial effects, there are numerous psychological studies which report enhanced self-worth and self-image associated with women's physical activity, a particularly significant outcome for older women, many of whom may experience loneliness and boredom at this stage in the life cycle (Wakat and Odom, 1982; Riddick and Daniel, 1984; Lutter et al., 1984; see Psychological considerations p. 86).

The general problem of poverty among older women in Canada needs to be considered in relation to their physical activity needs. Two-thirds of the widowed and unmarried women over 55 live below the poverty line. Thus, their most urgent needs are related to housing, transportation, health care and social services. In all of these areas, there are policy implications in terms of older women's physical activity needs — specifically, the need for free, accessible programs and facilities (Dulude, 1978).

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Physical activity and age-related osteoporosis

Genetic, mechanical, hormonal and dietary factors have been found to act together on the skeleton in retarding or accelerating osteoporosis (bone porosity characterized by reduced bone mineral content). There is currently a higher rate of osteoporosis in white females of northern European parentage than in any other group. However, while genetic factors may account in part for this pattern, it is also possible that variations are due to cultural differences in physical activity levels or to quantitative differences in muscle mass (Yeater and Martin, 1984; Aloia, 1981).

Physical activity stimulates bone growth and bone remodelling: increased bone density has been found in athletes, specifically in those bones subjected to stress in a specific sport (Huddleston et al., 1980). It is necessary to distinguish between cortical bone (as found in the tibia, for example) and trabecular bone (found in the spine). It is only cortical bone growth that is stimulated by physical activity. In non-athletes, the first signs of porosity are found in cortical bone which is not regularly subjected to mechanical stress during movement. There is evidence that exercise is effective in the prevention and treatment of osteoporosis, by contributing to the building of maximum bone mass before age 35 and to its maintenance during the rest of the life cycle (see Amenorrhea and osteoporosis among athletes, p. 146).

Estrogen loss which occurs at menopause was thought to be a primary factor in age-related osteoporosis, but this does not explain the onset of bone loss before age 40 found in both sexes. Thus, while estrogen deficiency is a factor in the increased rate of bone loss after menopause, it not the basic cause. Estrogen replacement therapy (ERT) may retard bone loss, but there are risks associated with its use. Operating on the disease model of menopause, physicians in the early 1970s routinely prescribed ERT for a variety of alleged menopausal symptoms, but by 1980, there was increasing evidence of a link between ERT and endometrial cancer. Subsequent recommendations concerning ERT advise that, if used al all, it should be prescribed at lowest dosage, for the shortest possible time and in a cyclical manner (Yeater and Martin, 1984; Oyster et al., 1984; Lutter, 1983; McCrea, 1983). Progesterone has been recommended as a safer hormone in the treatment of vasomotor instability (hot flashes), and one which may also prevent bone loss (Lobo, 1984; Mandel, 1982). Dietary calcium in conjunction with regular exercise have been recommended for prevention and treatment of bone loss, especially after menopause when estrogen loss may produce an imbalance in calcium absorption and excretion. A balanced intake of calcium and phosphorus is also recommended (Dixon, 1983; Korcok, 1982).

Non-hormonal approaches to the prevention of osteoporosis among menopausal women include the following: daily calcium intake of 1500 mg.; daily vitamin D intake of 400 IU or 15 minutes of sunlight; weight bearing exercise of at least 30 minutes, three times per week; reduced intake of caffeine, alcohol, salt, red meat and foods high in fat; and no smoking (Jensen, 1986; MacPherson, 1988).

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Physical Activity and Nutrition

General nutritional principles regarding energy, protein, vitamins, minerals and water apply to physically active individuals of both sexes. Other nutritional requirements specific to women are associated with the reproductive function: specifically, menstruation, pregnancy and lactation. As well, nutritional forms of prevention and treatment have been recommended for premenstrual syndrome, osteoporosis and secondary amenorrhea.

Blood loss through menstruation is a factor in the high incidence of iron deficiency, estimated at 20-30%, found in the North American female population. Other factors include low dietary iron intake and reduced absorption of iron caused by dietary inhibitors (coffee, eggs, bran and other foods). There are three stages of iron deficiency, all of which can affect physical performance: iron depletion, iron deficiency without anemia, and iron deficiency anemia. At stage one, low serum ferritin concentration indicates depleted iron stores. State two is indicated by low levels of serum iron concentration and transferrin saturation and by increased levels of iron-binding capacity. Stage three, iron deficiency anemia, is indicated by low hemoglobin concentration and other hemotologic data. There is some evidence that female athletes are more susceptible to stage one deficiency than sedentary women, and pre-season testing of iron status through a battery of tests is recommended, since stages one and two cannot be detected through hemotologic data alone (Parr et al., 1984; Grandjean, 1984; Steinbaugh, 1984).

Iron supplements are recommended for pregnant women and for those in whom iron deficiency or anemia has been confirmed. The pregnant or lactating woman who maintains a regular program of physical activity has nutritional needs above those of a nonpregnant athlete, in regard to her intake of calories, protein, iron, calcium and certain other minerals and vitamins (Grandjean, 1984).

Female athletes' dietary intakes are frequently below the recommended dietary allowances (Hickson et al. 1986), and the literature on this issue advises physical educators, coaches and trainers to provide reliable, up-to-date information on good nutrition for physically active girls and women.

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Steenkamp, I. et al. Marathon running fails to influence RBC survival rates in iron-replete women. *Physician and sportsmedicine 14 (5), 1986, 89-90;93;95.* SIRC/CDS

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Physical activity and weight control

Unlike many other areas of research on sport and physical activity, studies on the relationship between exercise and weight control tend to focus on female subjects, an indication of the sexual double standards surrounding body size. In a society where women's worth is evaluated primarily in terms of heterosexual attractiveness, the ideal weight and fatness level for females is shaped more by social and cultural factors than by objective scientific inquiry (see Sport, Gender and Sexuality p. 48). The prevalence of female self-hatred related to body size and eating habits can be explained as evidence of misogynist norms requiring women to be invisible (taking up minimal physical space), powerless (physically small and weak) and nurturant of others, but not of themselves (Chernin, 1981; Brown, 1985; Robinson, 1985). This is not to deny that obesity may pose a health risk: high blood pressure and high cholesterol levels increase CHD risk, and high blood-sugar levels are associated with diabetes.

There is evidence that regular physical activity, in combination with caloric restriction, will bring about weight loss. However, even in the absence of changes in body weight, there are other important beneficial results of exercise for overweight individuals: increased lean body mass (fat-free tissue), decreased plasma insulin, improved glucose tolerance, reduction in blood lipids, decreased blood pressure and improved cardiovascular efficiency. Improvements in fat/lean ratio are not necessarily accompanied by weight loss, since increases in muscle mass may offset decreases in body fat (Hoerr, 1984; Hadjiolova et al., 1982; Krotkiewski et al., 1983; Bhalla et al., 1983; MacKeen et al., 1983; Haskell and Superko, 1984).

More importantly, in the case of overweight women, regular exercise promotes physical fitness and psychological well-being. More progressive therapeutic approaches to female obesity use small group settings to promote a self-help approach to problems of self-esteem, control and body image, all of which have implications for subsequent weight loss. Aerobic exercise designed specifically for overweight women is an important component of this model (Robinson, 1985). This is in marked contrast to most psychological models, which focus on behavioural treatment programs and so-called compliance problems. However, physiological data derived from this kind of research may be of some use in designing alternative programs (Bray, 1983; Donahue et al., 1984: Thompson et al., 1982).

The widely recognized association between excess body weight and high blood pressure, diabetes and elevated blood lipids makes the promotion of healthy weight important in the prevention of cardiovascular disease. However, there is some debate over whether excess weight plays an independent role in the development of cardio-

vascular disease. Equally important, there is ample evidence that girls' and women's socially sanctioned preoccupation with weight results in behaviours that in themselves pose serious health risks: frequent dieting resulting in nutrient deficiencies; excessive exercise; smoking for weight control; and eating disorders such as anorexia nervosa and bulimia (Promoting healthy weights, 1988).

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Haskell, W.; Superko, R. Designing an exercise program for optimal health. *Family and community health 7 (1), 1984, 72-88.*

Hoerr, S.L. Exercise: an alternative to fad diets for adolescent girls. *Physician and sportsmedicine 12(2), 1984, 76-83.* SIRC/CDS

Katzman, M. et al. Speak don't eat. Teaching women to express their feelings. *Women and therapy 5, Summer/Fall 1986, 143-157.*

Krotkiewski, M. et al. Relationship between muscle morphology and metabolism in obese women: the effects of long-term physical training. *European journal of clinical investigation 13(1), 1983, 5-12.*

Lyons, P.; Ansfield, A. Body image and large women. *Melpomene Report 7 (1), 1988, 6-9.* SIRC/CDS

MacKeen, P.C. et al. Body composition, physical work capacity and physical activity habits at 18-month follow-up of middle-aged women participating in an exercise intervention program. *International journal of obesity 7(1), 1983, 61-71.* SIRC/CDS

Mergner, M. et al. Transforming women's body image: a feminist counselling approach. *Women and therapy 4, Fall 1985, 25-38.*

Munter, C. Fat and the fantasy of perfection. *In, Vance, C. ed., Pleasure and danger: exploring female sexuality. Boston: Routledge and Kegan Paul, 1984, p. 225-231.*

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Nopper, S.; Harley, J. How society's obsession with thinness is consuming women. *Herizons 4 (7), 1986, 24-29.*

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Woo, R. et al. Effect of exercise on spontaneous calorie intake in obesity. *American journal of clinical nutrition 36(3), 1982, 470-477.*

Other Resources / Ressources additionnelles

Radiance: the magazine for large women, PO Box 31708, Oakland, California, USA 94604

Eating disorders among female athletes

There are two aspects of eating disorders that are linked to sport and physical activity: (1) the tendency for girls and women with eating disorders to use strenuous exercise as a means of losing weight; and (2) the incidence of pathogenic weight control behaviours (self-induced vomiting, binges, use of laxatives, diet pills and diuretics) among competitive athletes.

There is some debate over the theory that certain sports attract women with so-called anorexic personalities. Refuting that theory, Weight and Noakes (1987) reported that there was no higher incidence of abnormal eating attitudes nor anorexia nervosa among a representative sample of female marathoners than among the general population. In a study of three groups of adolescent females, Mallick et al. (1987) showed that,

although the athlete group and the student group showed anorexic-like behaviours (dieting and body dissatisfaction), they had significantly higher self-images than the eating-disordered group.

Feminist work identifying women's socially sanctioned preoccupation with weight as a women's health issue challenges the traditional medical model that psychologizes the problem of eating disorders and separates it from the general social obsession with thinness (Brown and Forgay, 1987; Chernin, 1981, 1985; Orbach 1979; 1982). Prevailing attitudes in western society link thinness with success, happiness and productivity for both sexes. For women, thinness is further associated with heterosexual attractiveness, and 'fat phobia' has particularly serious consequences for female self-esteem and body image (Ciliska and Rice, 1989). Feminist approaches to the problem begin with issues of women's self worth, body image and control in social-cultural settings where women are constantly reminded of their subordinate status vis-à-vis men.

The obsession with thinness in western societies is so pervasive that dieting can be seen as 'normal' female behaviour, even among preadolescent girls. It has been reported that 80% of females have tried dieting by age 18, and that, carried to extremes, dieting may be linked to eating disorders. Ninety percent of those with eating disorders are female and most are adolescents or young women. Research shows that women with anorexia have distorted body images, seeing themselves as fatter than they are. However, even non-dieting, normal-weight women also see themselves as larger than they are, a finding that underlines the need to examine the social-cultural pressure to be thin, as well as the psychological dimensions of the problem (Willmuth, 1986).

Pressure to be ultrathin comes from the media, from family and peers, from the diet industry and the fitness industry. More than 50% of individuals with eating disorders engage in exercise for weight control purposes, and fitness classes are a likely choice for women. Fitness instructors can assist these women by making it clear that the focus of the class is health and fun, not weight loss. Discussions of nutrition and eating disorders in class are also helpful (National Eating Disorder Information Centre, 1988).

Females engaged in sports and physical activities where thinness has become a prerequisite — e.g. gymnastics, dance and distance running — are doubly at risk. In these and other competitive activities, athletes may resort to pathogenic weight control behaviours in order to maintain a competitive edge over their opponents (Rosen and Hough, 1988; Black and Burckes-Miller, 1986; Teskey, 1986; Hamilton et al. 1986). However, these behaviours are found even among athletes in such sports as field hockey, tennis, softball, volleyball and track (Rosen et al. 1986). The conflicting findings in some studies (Campbell, 1986; Mallick et al. 1987) have led researchers to question the reliability of the various self-image and body satisfaction scales, most of which were not designed specifically for an athletic population.

Coaches and trainers of young female athletes have a responsibility to help prevent eating disorders. It has been reported that even casual references to overweight may prompt girls to resort to pathogenic weight control behaviours, and insensitive coaches may precipitate the problem by public criticisms of females who have not stayed within some arbitrary weight range. (See also Sexual harassment and sexual abuse. p. 53). A pilot study on eating disorders and coach/athlete relationships (Jaffee, 1988) reported that while most coaches seemed aware of and concerned about the problem, only a few coaches reported awareness of actual problems among the women they coached, perhaps because they did not know what signs and symptoms to look for.

Guidelines for coaches suggested by Slavin (1987), Black and Burckes-Miller (1988) and Nelson (1987) include the following: define the optimum body fat for the individual sport; monitor body fat and weight weekly (by some person other than the coach); set reasonable time frames for getting weight and fat into the recommended range; provide sound nutritional advice; and maintain strict confidentiality and sensitivity in dealing with athletes who may have eating disorders.

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Epling, W. et al. A theory of activity-based anorexia. *International journal of eating disorders 3 (1), 1983, 27.*

Hamilton, L. et al. Nutritional intake of female dancers: a reflection of eating problems. *International journal of eating disorders 5, 1986, 925.*

Hamilton, L. et al. Sociocultural influences on eating disorders in professional ballet dancers. *International journal of eating disorders 4, 1985, 465.*

Hamilton, L.H. et al. The impact of thinness and dieting on the professional ballet dancer. *CAHPER journal 52 (4), 1986, 30-35.* SIRC/CDS

Jaffee, L. Eating disorders and coach/athlete relationships. *Melpomene Report 7 (1), 1988, 12-13.* SIRC/CDS

Katz, J.L. Eating disorders. *In, Shangold, M. and Mirkin, G. eds., Women and exercise: physiology and sports medicine. Philadelphia: F.A. Davis, 1988, p. 248-263.* SIRC/CDS

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Temple, C. IAF research project: female distance runners and anorexia nervosa. *Physiotherapy in sport X11 (1), 1989, 8-10.* SIRC/CDS

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Willmuth, M. Treatment of obesity: a socio-political perspective. *Women and therapy 5(4), 1986, 27-38.*

Other Resources / Ressources additionnelles

Bulimia Anorexia Nervosa Association (BANA): sport, fitness, health and eating disorders
c/o University of Windsor,
Faculty of Human Kinetics
Windsor, Ontario, N9B 3P4
Attention: Dr. Dick Moriarty
hotline 519-253-7421 or 253-4232 ext. 2429

Hersize: a weight prejudice action group
223 Concord Avenue
Toronto, Ontario M6H 2P4

National Eating Disorder Information Centre
Toronto General Hospital
200 Elizabeth St.
CW 2-332
Toronto, Ontario M5G 2C4
416-340-4156
(Bimonthly bulletins, resource kits, bibliographies available)

Body Composition and Skeletal System

Females as a group have a higher percent body fat than males. The two major classifications of fat are essential fat and storage fat. Essential fat is required for normal physiologic functioning and is stored in bone marrow, muscles and organs. Storage fat includes that fatty tissue that protects internal organs and subcutaneous fat. Sex-specific fat, thought to be associated with female hormone synthesis, is classified as an essential fat. The sex difference in body fat of approximately 9% is also found between male and female athletes within a particular sport. In addition to sex and sport, ethnicity and age have been identified as key variables in fatness and fat patterning among athletes. There is, however, a wide variation for both sexes across all sports. For example, female and male field event athletes have 23.9% and 15.6% respectively — levels that are close to the average non-athlete — while the figures for distance runners are 15.7% and 5% (Sady et al., 1984; Mueller et al., 1982; Drinkwater, 1984).

The high body fat levels in female swimmers aid in buoyancy and thermoregulation (regulation of body temperature), especially in open-water distance swimming. At the other extreme, the low body fat level of female distance runners is an important factor in any sport which requires moving the body through space. Thus, body composition may play a part in determining suitability for particular sports, and conversely, participation in these sports may contribute to developing and maintaining a certain body fat level. The same relationship applies to somatotype. A particular type of physique may be a factor in the selection of a sport, and participation in that sport may influence body type, for example, by increasing muscularity or by retarding menarche so that the limbs grow longer during the extended growth period (see Menarche p. 142.) Wells (1985, Ch. 16) discusses findings concerning the relationship between somatotype and specific sporting skill.

Research on body composition has tended to focus on high performance athletes. Even in this elite group, there are many exceptions to the general trend — highly successful individuals whose physiques and fat levels differ from what is considered ideal for their sport. Therefore, the general relationship between body composition and suitability for particular sports need not be interpreted as a deterrent to participation for women with different physiques: body composition is only one of many factors contributing to athletic competence.

In females, ossification — the hardening of the bones — begins and ends from one to three years earlier than in males. Since this process ends at puberty, late-maturing girls achieve greater height and longer limbs than those who mature early, while females, on average, tend to have smaller, shorter skeletal systems than males (see Menarche p. 142). One outcome of this sex difference is females' lower centre of gravity and lighter frame, characteristics which may advantage them in activities requiring balance, agility and slight physique: figure skating, gymnastics and running both sprints and distance events. The lower centre of gravity and its effect on balance may also give females an advantage over taller male opponents in combat sports which involve grappling techniques; e.g. judo and aikido, compensating in part for the probable sex difference in strength.

Certain distinctive skeletal characteristics of females — the wider, shallower pelvis and the inward angle of the thighs — often receive attention in sports-medicine literature because of the alleged mechanical disadvantage in running caused by the resulting rotation and excessive arm movement. The relationship between running speed and hip width has been shown to be quite low, although the best female runners are typically narrow-hipped (Berg, 1984).

Elite runners have shown sex difference in stride length, stride rate, time of support and time of nonsupport, independent of body size, but it has not been determined whether or not sex differences in body structure are responsible (Sady and Freedson, 1984; Adrian, 1984). A 1984 cinematographic analysis of physical education students' gait patterns in walking and running found no significant sex difference in vertical lift per stride or total vertical lift per km of distance walked/run. Women's running speed was slower, but there was no sex difference in walking speed (Bhambhani and Singh, 1985).

Another skeletal difference involves the shorter length of the forearm in females, on average, than in males and its different angle in relation to the upper arm. These differences, together with females' narrower shoulders, have often been cited as reasons for their less effective throwing style, but Bale (1982) and Young (1980) have suggested that environmental factors are at least as important as biological factors in accounting for sex differences in throwing ability (see Motor performance p. 127).

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Freedson, P.S. et al. Physique, body composition, and psychological characteristics of competitive female body builders. *Physician and sportsmedicine 11(5), 1983, 85-90;93.* SIRC/CDS

Graves, J. E. et al. Body composition of elite female distance runners. *International journal of sports medicine 2 (8), 1987, 96-102.* SIRC/CDS

Hebbelinck, M. et al. Anthropometric characteristics of female Olympic rowers. *Canadian journal of applied sport sciences 5(4), 1980, 255-262.* SIRC/CDS

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Khosla, T. Age, height and weight of female olympic finalists in running events. *British journal of sports medicine 19 (4), 1985, 214-216.* SIRC/CDS

Khosla, T. Sport for tall. *British medical journal (clinical research) 287(6394), 10 Sept 1983, 736-738.* SIRC/CDS

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O'Toole, M.L. et al. The ultraendurance triathlete: a physiological profile. *Medicine and science in sports and exercise 19 (1), 1987, 45-50.* SIRC/CDS

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Performance Capacity

Performance capacity has five basic components:

a) power and capacity of the energy systems;
b) efficiency and capacity of cardio-vascular system;
c) muscular endurance;
d) muscular strength; and
e) general body flexibility.

Dyer (1982, Chs. 3 and 6) and Wells (1985, Part I and Part V) provide detailed discussions of these components and their relation to female athletic performance. Some selected aspects of physical fitness will be discussed here, using Dyer and Wells as the major sources except where otherwise noted.

Anaerobic/aerobic energy systems

Three interrelated systems provide energy to muscles: two are anaerobic (oxygen-free) and one is aerobic (oxygen-utilizing). Short term energy requirements (up to about 10 seconds), as in explosive events such as sprints and jumps, are provided for by the breakdown of phosphates stored in the muscles. Stair-running tests, which measure the ability to use phosphate stores in the leg muscles, show little difference between males and females when values are expressed relative to body weight. There are the expected difference based on intensity of training and type of sport: the most highly trained female athletes, and those in sports which require optimal leg power, produce the best performances on stair-running tests.

Medium term energy requirements (approximately 30 seconds to two minutes) are met by the lactic acid system. Glycogen stored in the muscles is partially broken down, producing lactic acid and adenosine triphosphate (ATP). Lower levels of lactic acid have been found after prolonged exercise in women than in men, indicating that less energy was available to them, but some past studies may have given female subjects lower workloads than males. Both sedentary women and trained female athletes respond to high intensity training regimens, showing improved aerobic threshold as well as gains in aerobic power (Wells, 1985, Ch. 14; Gibbons et al., 1983).

The third system, the aerobic or oxygen system, uses glycogen and fat as energy sources and is important for activities performed at a submaximal rate over a lengthy period. Major factors involved in oxygen uptake include the oxygen-carrying capacity of the blood (dependent primarily on hemoglobin concentration), cardiac output (related to heart volume and heart rate) and cellular utilization of oxygen (arterial-venous oxygen difference). Up to puberty, sex differences in these areas are minimal. After puberty, sex differences in lean body mass and percent body fat are, to a certain extent, reflected in differences in the efficiency of the aerobic system, although environmental as well as physiological factors contribute to these differences.

Maximum oxygen uptake, or V02 max, is the usual measure of cardiovascular fitness and maximal aerobic power. It can be expressed in absolute terms or relative to body weight or to lean body mass. For athletes competing in the same sport, the differences between males and females average 51.5%, 18.6% and 9% respectively. Differences in body size and composition have been found to account for most of the sex difference between male and female athletes in the same sport. Although some basic biological differences in cardiac output, oxygen-carrying capacity of blood and muscle mass in males and females might be expected to produce about 10% difference, Nordic skiers have shown a sex difference of only 4-5% (Drinkwater, 1984b).

Thus, it cannot be said with certainty that any sex difference in V02 max is biologically determined. The physical demands of a specific sport, and not the sex of participants, constitute the major determinant of V02 max in athletes. Males and females in the same sport are closer in V02 max than females in different sports. O'Toole's investigations, for example, show that female triathletes resemble male triathletes more than either group resembles sedentary sex-matched individuals (O'Toole et al., 1987)

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Massicotte, D.R. et al. Prédiction du VO2 max à partir des courses de 800, 1600 et 2400 mètres chez les jeunes âgés de 6 à 17 ans. *CAHPER/ACSEPL journal 51 (6), 1985, 25-29.* CDS/SIRC

Maud, P.J.; Shultz, B.B. Gender comparisons in anaerobic power and anaerobic capacity tests. *British journal of sports medicine 20 (2), 1986, 51-54.* SIRC/CDS

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Yoshida, T. et al. Blood lactate parameters related to aerobic capacity and endurance performance. *European journal of applied physiology and occupational physiology 56 (1), 1987, 7-11.* SIRC/CDS

Training response

Women demonstrate the same training response and percent improvement as men when they train at sufficiently intense levels (Drinkwater, 1984b; Wells, 1985).

Dyer (1982, Ch. 6) has investigated the effects of training on sex differences for three physiological parameters: hemoglobin concentration, blood volume and heart volume. His findings were as follows:

	Untrained sex difference	Trained sex difference
Hemoglobin	26.7%	8.8%
Blood volume	17.2%	1.7%
Heart volume	24.1%	3.2%

Dyer's findings point to the probable distortions resulting from any comparison of untrained males and females on fitness-related measures. The dramatic reductions in sex difference after training indicate that, even in a so-called untrained state, males, for a variety of social-cultural reasons, are able to come closer to their full physical potential than females. Societal attitudes and practices concerning sex-appropriate behaviour, which serve to constrain female physical activity from a very young age, are obviously major factors in this pattern (see p. 39 Socialization, p. 48 Sport, Gender and Sexuality).

With increased female participation in aerobic dance programs over the past decade, several recent studies have investigated whether the training responses to this activity are comparable to those of other aerobic exercise. As in all aerobic activities, intensity, duration and frequency determine whether the desired training outcomes — increased V02 max, lower resting heart rate and decreased heart rate during submaximal exercise — are achieved. It was found that regular participation in sufficiently intense aerobic dance produced these results (Cohen, 1984; Eickhoff et al., 1983; Milburn and Butts, 1983).

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Burkett, L.N. et al. Physiologic effects of distance running training on teenager females. *Research quarterly 56 (3), 1985, 215-220.* SIRC/CDS

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Cohen, A. Dance - aerobic and anaerobic. *Journal of physical education, recreation & dance 55(3), 1984, 51-53.* SIRC/CDS

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Eickhoff, J. et al. Selected physiological and psychological effects of aerobic dancing among young adult women. *Journal of sports medicine and physical fitness 23(3), 1983, 273-280.* SIRC/CDS

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Gibbons, E.S. et al. Effects of various training intensity levels on anaerobic threshold and aerobic capacity in females. *Journal of sports medicine and physical fitness 23(3), 1983, 315-318.* SIRC/CDS

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Johnson, S. et al. The effect of training frequency of aerobic dance on oxygen uptake, body composition and personality. *Journal of sports medicine and physical fitness 24 (4), 1984, 290-298.* SIRC/CDS

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Muscular strength and endurance

Muscle fibres may be designated as slow-twitch (ST) or fast-twitch (FT) depending on their composition and metabolic potential: ST fibre is suited to prolonged aerobic exercise and FT fibre to explosive power. Thus, individuals (of either sex) with a higher percentage of ST fibres are predisposed to greater success in endurance activities such as distance running and cycling. Since ST/FT ratio is determined by heredity, it does not change with training, although training increases the size of fibre area. There are no significant sex differences in the ST/FT ratio for athletes in the same sport (Drinkwater, 1984).

There are sex differences in the size of fibre area, and these are reflected in differences in the strength of males and females. However, if values for specific areas of the body are expressed relative to body size or lean body mass, sex differences are greatly reduced, especially in terms of leg strength. Overall, muscles form a lower proportion of a female's body weight than a male's. Muscular flexibility is greater in females, compensating in part for their overall lower levels of muscular strength. The relation of muscle strength to muscle cross-sectional area is the same for both sexes.

Strength training programs have been shown to produce higher rates of strength improvement (up to 50%) in females than males, probably because females were initially further from their strength potential. Strength increases in women are accompanied by slight increases in muscle girth, especially in the arms and shoulders. With the lower levels of the growth-promoting hormone testosterone in females than in males, women will probably not experience the marked increase in muscle girth seen in men who engage in strength training programs (Wilmore, 1977).

Women's entry to American military academies in 1976 provided opportunities to observe their fitness levels under controlled conditions. A 1979 study concluded that national fitness standards were below women's real potential: upper body extension strength, aerobic capacity and abdominal strength of female Air Force Academy cadets showed significant improvements after a four-week intensive physical training, with their final performance scores well above those of college women of the same age (Thomas, 1979). A 1984 study of Naval Academy cadets showed marked improvements in women's average performance over the proceeding seven years, particularly in upper body strength. Male cadets' performances showed little statistical improvement, probably because of their high initial fitness and strength levels (Cox and Lenz, 1984; Stiehm, 1981).

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Ewing, J.L.; Stull, G.A. Rate of force development in the handgripping muscles by females as a function of fatigue level. *Research quarterly 55(1), 1984, 17-23.* SIRC/CDS

Gerard, E.S. et al. Skeletal muscle profiles in elite springboard and platform divers. *American journal of sports medicine 15 (2), 1987, 125-128.* SIRC/CDS

Kauffman, T.L. Strength training effect in young and aged women. *Archives of physical medicine and rehabilitation 66 (4), 1985, 223-226.* SIRC/CDS

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Meadors, W.J. et al. A comparison of three conditioning protocols on the muscular strength and endurance of sedentary college women. *Athletic training 18(3), 1983, 240-242.* SIRC/CDS

St-Pierre, D. et al. The effects of endurance and power training on skeletal muscle enzyme activities in young females. *Journal of sports medicine and physical fitness 23(3), 1983, 281-285.* SIRC/CDS

Stiehm, J. Bring me men. *In, Stiehm, J., Upper body strength: physical education and athletics. Berkeley: University of California Press, 1981, p. 147-177.*

Telford, R.D. et al. Leg strength of athletes in 14 different sports. *Sports science & medicine quarterly 2 (1), 1985, 6-9.* SIRC/CDS

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Weiss, L.W. et al. Comparison of serum testosterone and androstenedione responses to weight lifting in men and women. *European journal of applied physiology and occupational physiology 50(3), 1983, 413-419.* SIRC/CDS

Weiss, L.W. Upper extremity assessment of muscularity in young children. *Journal of orthopaedic and sports physical therapy 8 (8), 1987, 397-401.* SIRC/CDS

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Flexibility

Flexibility of muscles, tendons and ligaments is related to more efficient sporting performance, e.g. longer running strides, better hurdling techniques and better kick and arm movements in swimming. Females of every age group are more flexible than males. Greater flexibility of the joints and cartilege of the pelvic girdle, vertebral column and foot make women better adapted to springing, landing and extensions. The smaller tendons and ligaments, on average, in females may account for the greater mobility of some joints (Hunter, 1984).

The most common flexibility test is the sit and reach, which measures trunk flexion and hamstring flexibility. Girls show continuous improvement from ages 10 to 18, with a gradual decline throughout the adult years (Stephens, 1983; Ross et al., 1985). Although flexibility is increasingly recognized as both an integral component of physical fitness and an important factor in injury prevention, it is perhaps significant that some fitness surveys fail to include it. The emphasis on the "swifter, higher, stronger" ethos in male competitive sport is reflected in the attention paid to those measures of physical fitness which have clear and direct links to sporting performance, that is, measures of speed, strength and endurance.

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Chambers, B. Fitness of dancers and varsity athletes. *Journal of physical education, recreation & dance 52(5), 1981, 46;49.* SIRC/CDS

Docherty, D.; Bell, R.D. The relationship between flexibility and linearity measures in boys and girls 6-15 years of age. *Journal of human movement studies 11 (5), 1985, 279-288.* SIRC/CDS

Dummer, G.M. et al. Muscular strength and flexibility of two female masters swimmers in the eighth decade of life. *Journal of orthopaedic and sports physical therapy 6(4), 1985, 235-237.* SIRC/CDS

Hardy, L. Improving active range of hip flexion. *Research quarterly for exercise & sport 56 (2), 1985, 111-114.* SIRC/CDS

Hunter, L.Y. Women's athletics: the orthopedic surgeon's viewpoint. *Clinics in sports medicine 3(4), 1984, 809-827.* SIRC/CDS

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Raab, D.M. et al. Light resistance and stretching exercise in elderly women: effect upon flexibility. *Archives of physical medicine and rehabilitation 69 (4), 1988, 268-272.* SIRC/CDS

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Thermoregulation

Temperature regulation in females during exercise in hot environments is related to such factors as sweating rate, ratio of skin surface area to weight, body water content and metabolic rate. A 1984 review of studies investigating thermoregulation in males and females found more similarities than differences between the sexes and reported that some of the earlier research did not take into account the athletes' fitness levels, degrees of heat acclimatization and exercise intensity. Overall, response to heat stress was found to depend more on the state of the cardiovascular system than on sex: training lowers the thresholds for sweating and vasodilation (Drinkwater, 1984; Haymes, 1984).

When men and women exercised at the same relative intensity, in hot, dry environments, there were few differences, while in hot, humid conditions, women's higher skin surface area/weight ratio facilitated heat loss and gave them greater heat tolerance (Haynes, 1984). Menstrual cycle phase has little effect on thermoregulation, nor has aging been found to decrease sweating capacity (Stephenson et al., 1982; Drinkwater et al., 1982; Sawka et al., 1983).

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Drinkwater, B.L. Women and exercise: physiological aspects. *Exercise and sport sciences reviews 12, 1984, 21-51.* SIRC/CDS

Dulac, S. et al. Metabolic and hormonal responses to long-distance swimming in cold water. *International journal of sports medicine 8 (5), 1987, 352-356.* SIRC/CDS

Graham, T.E. Alcohol ingestion and sex differences on the thermal responses to mild exercises in a cold environment. *Human biology 55(2), 1983, 463-476.* SIRC/CDS

Graham, T.E.; Lougheed, M.D. Thermal responses to exercise in the cold: influence of sex differences and alcohol. *Human biology 57 (4), 1985, 687-698.* SIRC/CDS

Haymes, E.M. Physiological responses of female athletes to heat stress: a review. *Physician and sportsmedicine 12(3), 1984, 45-48;51-53;56;59.* SIRC/CDS

Hirata, K. et al. Effects of human menstrual cycle on thermoregulatory vasodilation during exercise. *European journal of applied physiology and occupational physiology 54 (6), 1986, 559-565.* SIRC/CDS

Hong, S.K. et al. Cold acclimatization and deacclimatization of Korean women divers. *Exercise and sport sciences reviews 14, 1986, 231-268.* SIRC/CDS

Lamont, L.S. Sweat lactate secretion during exercise in relation to women's aerobic capacity. *Journal of applied physiology 62 (1), 1987, 194-198.* SIRC/CDS

Murphy, P. Olympic marathon fury heats up. *Physician and sportsmedicine 12(10), 1984, 161-163.* SIRC/CDS

Myhre, L.G. et al. Plasma volume changes in middle-aged male and female subjects during marathon running. *Journal of applied physiology 59 (2), 1985, 559-563.* SIRC/CDS

Sawka, M.N. et al. Hypohydration and exercise: effects of heat acclimation, gender, and environment. *Journal of applied physiology: respiratory, environmental and exercise physiology 55(4), 1983, 1147-1153.* SIRC/CDS

Stephenson, L.A. et al. Metabolic and thermoregulatory responses to exercise during the human menstrual cycle. *Medicine and science in sports and exercise 14(4), 1982, 270-275.* SIRC/CDS

Viswanathan, M. et al. Exercise- and cold-induced changes in plasma beta-endorphin and beta-lipotropin in men and women. *Journal of applied physiology 62 (2), 1987, 622-627.* SIRC/CDS

Selected Aspects of Female Athletic Performance over the Life Cycle

Motor performance

Although sex differences in motor performance have been identified in young children, there are several confounding factors. There is evidence that girls perform better in test situations that are coeducational rather than all-female, and this finding provides a graphic example of the early effects of sex-differentiated socialization (Hall and Lee, 1984). As on other questions of performance, it is difficult to determine which sex differences are attributable to social-cultural conditions and which, if any, are biologically determined. Throwing (for distance) provides a good example: from a very young age, male performance is superior to female, and the sex difference is far greater than for other motor skills. Bale (1982) and Young (1980) have identified the ways in which social learning results in insufficient practice and experience, producing the less efficient style of throwing seen in the majority of North American girls and women. A study of Bulgarian girls showed that their throwing ability continued to improve up to the age of 18, where-

as American girls levelled off between 13 and 15. It was suggested that cultural attitudes towards strenuous physical activity accounted for the difference (Bale, 1982).

An unpublished study cited by Wilmore (1977) tested the throwing ability of over 200 males and females aged three to 20, using both dominant and non-dominant hands. Up to about 12 years of age, there was no sex difference for the non-dominant arm, while the results for the dominant arm favoured males. Sex differences in strength after age 12 accounted for the differences in the non-dominant arm.

Anderson, D.F. et al. Effects of age, sex, and placement of a model on children's performance on a ball-striking task. *Perceptual and motor skills 57(3), Pt 2, 1983, 1187-1190.* SIRC/CDS

Arbeit, E. et al. Différences entre la technique de lancer du disque chez les hommes et chez les femmes. Differences in the throwing technique in the discus for men and women. *Amicale des entraîneurs français d'athlétisme 102, sept./oct. 1987, 75-81.* CDS/SIRC

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Bedingfield, E.W.; Skleryk, B.N. The effect of ball size and weight on the performance of CIAU basketball players. Edmonton: University of Alberta, 1985. SIRC/CDS

Brawley, L.R. et al. Sex bias in evaluating motor activity: general or task-specific performance expectancy? *Journal of sport psychology 2(4), 1980, 279-287.* SIRC/CDS, SIRLS

Evans, B.W. et al. Body composition and body type of female dance majors. *Dance research journal 17 (1), 1985, 17-20.* SIRC/CDS

Hall, E.G.; Lee, A.M. Sex differences in motor performance of young children: fact or fiction? *Sex roles 10(3/4), 1984, 217-230.* SIRC/CDS

Halverson, L.E. et al. Development of the overarm throw: movement and ball velocity changes by seventh grade. *Research quarterly 53(3), 1982, 198-205.* SIRC/CDS

Harris, J.D.; Jones, M.A. Reading, math, and motor performance. *Journal of physical education, recreation & dance 53(9), 1982, 21-22;28.* SIRC/CDS

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Hudson, J.L. Prediction of basketball skill using biomechanical variables. *Research quarterly 56 (2), 1985, 115-121.* SIRC/CDS

Husak, W.S. The women's smaller basketball. Its influence on performance and attitude. *Journal of physical education, recreation & dance 57 (9), 1986, 18-26.*

Isaacs, L.D. Effects of ball size, ball color, and preferred color on catching by young children. *Perceptual and motor skills 51(2), 1980, 583-586.* SIRC/CDS

Isaacs, L.D.; Frederick, S.D. Response time and grip strength as possible factors affecting children's catching performance. *Perceptual and motor skills 61 (2), 1985, 627-630.* SIRC/CDS

Koslow, R.; Payne, V.G. Effects of varying ball diameters on catching ability of young children. *Perceptual and motor skills 53(3), 1981, 739-744.* SIRC/CDS

Morris, A.M. et al. Age and sex differences in motor performance of 3 through 6 year old children. *Research quarterly 53(3), 1982, 214-221.* SIRC/CDS

Nelson, J.K. Gender differences in children's throwing performance: biology and environment. *Research quarterly 57 (4), 1986, 280-287.*

Rikli, R.; Busch, S. Motor performance of women as a function of age and physical activity level. *Journal of gerontology 41 (5), 1986, 645-649.*

Skleryk, B.N.; Bedingfield, W.E. Ball size and performance. *In, Terauds, J. and Barham, J.N., Biomechanics in sport conference. Del Mar, California, 1985, p. 90-100.*

Spilthoorn, D. The effect of music on motor learning. *Bulletin of the Fédération internationale d'éducation physique 56 (2), 1986, 21-29.* SIRC/CDS

Utrianen, E. Différence entre l'entraînement des hommes et celui des femmes au javelot. Difference in men's and women's training for javelin. *Amicale des entraîneurs français d'athlétisme 102, sept./oct. 1987, 55-68.* CDS/SIRC

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Wilmore, J.H.; Erdelyi, G.J. Female athlete: gynecological survey of female athletes. *Journal of school health 47(4), 1977, 227-233.* SIRC/CDS

Young, I. Throwing like a girl: a phenomenology of feminine body comportment, motility and spatiality. *Human studies 3, Apr 1980, 137-156.*

Some effects of age on fitness

The report of a recent congress, *Children and Sport: Pediatric Work Physiology* (Ilmarinen and Valimaki, 1984) presents over 30 studies on this topic, based primarily on European research. Trends in girls' and women's performances, as seen in recent surveys conducted in Canada and the U.S. are summarized below:

Cardiovascular fitness:

— for the one-mile run, females improved up to the ages of 14 or 15, when there was a slight decline and then a plateau up to age 18;

— on the stop-test, females showed a sharp drop from ages 11 to 17;

— on the bicycle ergometer PWC-170 test, girls peaked around ages nine to 11, declined sharply at age 12 and levelled off with a slight improvement between ages 15 and 17.

Muscular strength and endurance:

— for sit-ups, there were conflicting findings: continued improvement in females up to ages 17 to 18 in some surveys and a decline beginning around age 14 to 15 in others. By ages 20 to 29, according to the Canada Fitness Survey (1983), performance dropped to the level of girls ages seven to nine;

— performance for push-ups improved up to 13 to 14 years, when there was a decline;

— for chin-ups, females showed constantly low scores (mean score of one) throughout the age range 10 to 18 years, although in the top percentiles there was very little variation throughout this age range;

— for the flexed arm hang, females showed a significant increase in performance only between ages eight and nine, levelling off from ages nine to 17. Grip strength improved consistently from ages seven to nine up to ages 40 to 49, followed by a gradual decline.

(Conger et al., 1982; Canada Fitness Survey, 1983; Gauthier et al., 1983; Ross et al., 1985; Wells, 1985 Dyer, 1989).

Two recent Scandinavian studies (Sundberg, 1982, 1983) comparing lung volume, exercises ventilation and V02 max of blind and slighted children pointed out the importance of physical activity during early childhood (before age eight), concluding that different activity levels were, to a high degree, responsible for differences between the two groups. Of particular interest were the findings concerning similarities and differences between sexes. Sighted boys had significantly higher values than sighted girls; their V02 max increased faster with age and peaked around age 18, compared to girls' peak at around age 14, a finding which conformed to other European studies of normal populations. However, there were no significant sex differences in V02 max in the blind children. These findings suggest that the disability of blindness may override the usual environmental factors which have traditionally provided boys with more opportunities for physical activity than girls. Furthermore, these findings call into question any assumptions regarding inmate sex differences in children's physical working capacity.

Relationships between age, sex and fitness suggest that a combination of social-cultural and biological factors is at work. The developmental

changes following puberty, the adolescent girl's changing priorities and recreational interests and societal attitudes and practices concerning sex-appropriate physical activities are interacting in ways which have the net effect of making her lifestyle more sedentary, so that endurance, upper body and abdominal strength level off, or, in some cases, decline during the adolescent and young adult years. There is clear evidence, however, that females of all ages and fitness levels respond to training and that the patterns reported in North American fitness surveys of the 1980s are by no means universal or immutable.

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Blair, S. Health-related fitness in high school girls. *Physical educator 45 (1), 1988, 52-56.* SIRC/CDS

Canada Fitness Survey. Enquête condition physique Canada. Canadian youth and physical activity. L'activité physique et les jeunes au Canada. Ottawa: Fitness and Amateur Sport / Condition physique et Sport amateur, 1983. SIRC/CDS, SIRLS

Canada. Fitness and Amateur Sport. Condition physique et Sport amateur. Fitness fits: the Government of Canada's newsletter on youth and physical activity. Soyons en forme: le bulletin du Gouvernement du Canada sur la jeunesse et l'activité physique.

Canada. Fitness and Amateur Sport, Women's Program. Canada Fitness Survey. Condition physique et Sport amateur, Programme pour les femmes. Enquête condition physique Canada. Changing times: women and physical activity. En évolution: la femme et l'activité physique. Ottawa: Canada Fitness Survey / Enquête condition physique Canada, 1984. SIRC/CDS, SIRLS

Conger, P.R. et al. Age and sex performance variation of the CAHPER Fitness Performance II Test. *CAHPER journal 49(1), 1982, 12-16.* SIRC/CDS

Cooper, D.M. et al. Kinetics of oxygen uptake and heart rate at onset of exercise in children. *Journal of applied physiology 59 (1), 1985, 211-217.* SIRC/CDS

Dahlgren, W.J. Rapport du groupe d'étude national sur les jeunes femmes et l'activité physique: le statu quo et les stratégies en vue de changements. Ottawa: Condition physique Canada et Condition physique et Sport amateur Canada, Programme pour les femmes, 1988. CDS/SIRC

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DuRant, R.H.; Dover, E.V. Evaluation of five indices of physical working capacity in children. *Medicine and science in sports and exercise 15(1), 1983, 83-87.* SIRC/CDS

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Eso, E. Fitness in adolescence in a northern community: phase I, 1984. Whitehorse, 1985. SIRC/CDS

Gauthier, R. et al. The physical work capacity of Canadian children, aged 7 to 17, in 1983. A comparison with 1968. *CAHPER journal 50(2), 1983, 4-9.* SIRC/CDS

Hunter, S.C. et al. Standards and norms of fitness and flexibility in the high school athlete. *Athletic training 20, Fall 1985, 210-212.* SIRC/CDS

Ilmarinen, J.; Vaelimaeki, I. Children and sport: paediatric work physiology. Berlin: Springer-Verlag, 1984. SIRC/CDS

Krahenbuhl, G.S. et al. Developmental aspects of maximal aerobic power in children. *Exercise and sport sciences reviews 13, 1985, 503-538.* SIRC/CDS

Raithel, K.S. Are girls less fit than boys? *Physician and sportsmedicine 15 (11), 1987, 156-157;159-160;162-163.* SIRC/CDS, SIRLS

Ross, J. National children and youth fitness study report. *JOPERD 56 (1), 1985, 44-85.*

Rowland, T.W.; Green, G.M. Physiological responses to treadmill exercise in females: adult-child differences. *Medicine and science in sports and exercise 20 (5), 1988, 474-478.* SIRC/CDS

Sohi, A.S. Development of explosive power among 6-14 years boys and girls. *Asian journal of physical education 8 (2), 1985, 57-64.* SIRC/CDS

Stephens, T. Condition physique et mode de vie au Canada: rapport de l'Enquête condition physique Canada. Fitness and lifestyle in Canada: a report by Canada Fitness Survey. Ottawa: Fitness and Amateur Sport / Condition physique et Sport amateur, 1983. CDS/SIRC

Sundberg, S. Lung volume and exercise ventilation in blind and normal boys and girls. *Respiration 44(6), 1983, 444-449.* SIRC/CDS

Sundberg, S. Maximal oxygen uptake in relation to age in blind and normal boys and girls. *Acta paediatrica Scandinavica 71(4), 1982, 603-608.*

Sunnegardh, J.; Bratteby, L.E. Maximal oxygen uptake, anthropometry and physical activity in a randomly selected sample of 8 and 13 year old children in Sweden. *European journal of applied physiology and occupational physiology 56 (3), 1987, 266-272.* SIRC/CDS

The effects of anabolic steroids on performance

Androgens are a class of steroids characterized by their effect on primary and secondary sex characteristics of males and by their anabolic (growth-promoting) effects on both sexes. Studies of anabolic steroid use, conducted on male athletes, have produced conflicting findings. No improvement in aerobic athletic performance has been found. Increases in strength were found in about half of the studies, and only when certain other conditions were satisfied: intensive weight training programs before and during steroid regimen, high protein diet and increases in body size and weight (Haupt and Rovere, 1984).

Liver disorders, most of which were reversible, were a common side effect of steroid use which might be expected to occur in both sexes. For male athletes, other side effects, also reversible, included lowered sperm count and decreased testosterone output. The side effects experienced by female athletes have not been investigated in controlled studies, but virtually every recent review of the literature cites pre-1970 data on "virilizing" side effects of female steroid usage. These data concerned cases where androgen therapy was administered to female patients in the treatment of bone marrow failure and carcinoma of the breast. Virilizing effects included coarsening of the voice, hirsutism (facial and body hair), clitoral enlargement and baldness, all reversible through anti-androgen therapy. In the absence of more reliable data, most reviewers assume that healthy female athletes will risk the same side effects (Lamb, 1984; Haupt and Rovere, 1984; Wilson and Griffin, 1980).

The International Amateur Athletic Association added anabolic steroids to its list of banned drugs in 1976, and random spot testing has identified users of both sexes, but it is the virilizing effects that consistently attract public and media attention whenever a female athlete is suspected of steroid use (Lucking, 1982). Regardless of the user's gender, it seems clear that the major concerns to be addressed are related to the athlete's health and to the ethics of fair sporting competition, not the "unwomanly" appearance of suspected users.

Duda, M. Female athletes: targets for drug abuse. *Physician and sportsmedicine 14 (6), 1986, 142-146.* SIRC/CDS, SIRLS

Elliot, D.L. et al. Characteristics of anabolic-androgenic steroid-free competitive male and female bodybuilders. *Physician and sportsmedicine 15 (6), 1987, 169-172;177-179.* SIRC/CDS

Haupt, H.A.; Rovere, G.D. Anabolic steroids: a review of the literature. *American journal of sports medicine 12(6), 1984, 469-484.* SIRC/CDS

Lamb, D.R. Anabolic steroids in athletics: how well do they work and how dangerous are they? *American journal of sports medicine 12(1), 1984, 31-38.* SIRC/CDS

Lucking, M.T. Steroid hormones in sports. Special reference: sex hormones and their derivatives. *International journal of sports medicine 3(Suppl. 1), 1982, 65-67.* SIRC/CDS

Taylor, W. N.; Black, A. B. Pervasive anabolic steroid use among health club athletes. *Annals of sports medicine 3 (3), 1987, 155-159.* SIRC/CDS

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Wilson, J.D.; Griffin, J.E. Use and misuse of androgens. *Metabolism 29(12), 1980, 1278-1295.*

Injuries

Sportsmedicine literature over the past decade supports the claim that most injuries are sport-specific, not sex-specific. Football, for example, produces head, neck and upper body injuries, whereas gymnastics is associated with knee, ankle and foot injuries. This does not mean that football players, being male, have weak necks, or that gymnasts, being female, have weak ankles, although this kind of faulty reasoning is often seen in discussions of female athletes' injuries. In considering sport-specific injuries, it is useful to identify three categories — injuries which result from overuse, from biomechanical fault or from collision with players or equipment.

It is difficult to determine the extent, if any, to which inherent characteristics — for example, bio-mechanical faults — are responsible for existing injury patterns among females. If girls were encouraged to develop their full physical potential from birth, and if their coaches and trainers were fully informed regarding the best methods of conditioning and injury prevention, present injury patterns among female athletes might change dramatically.

When comparisons are made for the same sporting activity, there are conflicting results: some studies of injury patterns in track athletes and basketball players show minimal sex difference: some report a greater incidence of knee, ankle and foot injuries among females; others report a higher overall injury rate for males (Shively et al., 1981; Whiteside, 1980).

On the issue of childhood injury, recent studies have shown that both sexes sustain serious injuries in school athletic programs and in school playgrounds, pointing to the importance of coaching, training and supervision for school-age children, male and female. A recent Ontario study reported significantly higher school injury rates among boys than girls at both elementary and secondary levels, a finding consistent with earlier studies in the U.S. but noted that it was the incident of minor, rather than serious, injuries that contributed to the bulk of the difference (Feldman et al., 1983; Rivara, 1982).

Women's mass participation in dance exercise since 1969 attracted little medical attention until the 1980s, when it became evident that many instructors had no formal training in the safety aspects of this activity — cardiorespiratory and mechanical stress tolerance in particular. Reports from a 1984 Aerobics Dance Injuries Symposium in the U.S. showed that instructors themselves were sustaining a high number of overuse injuries, especially to the shin, knee and back. Contributing factors included dancing on non-resilient surfaces, wearing inappropriate shoes and being required to teach an excessive number of classes per week. In other words, issues of working conditions in the predominantly private enterprise fitness industry, in addition to the question of guidelines for instructor qualification, had to be considered. Participants experienced similar kinds of injuries, although on a smaller scale. In all cases, attention to shoes, floor surface, stretching and warmup was recommended (Francis et al., 1985; Vetter et al., 1985; Richie et al., 1985).

Gymnasts experience a high risk of injuries, estimated by one researcher in 1975 to be double that of any other women's sport. Thus, preventive measures deserve serious attention (Colby and Fricker, 1984). Most common sites are knees, ankles, feet, hips, wrists and backs, and injuries

range from soft tissue damage and strains to stress fractures and torn ligaments. Recent studies have stressed the importance of good spotting, and concern has been expressed over the policy of penalizing gymnasts who use spotters in competition. It has been suggested, too, that scoring systems should be re-evaluated to encourage easier, and less potentially dangerous dismounts (Hunter and Torgan, 1983; Hage, 1983).

Virtually every discussion of women's sport-related injuries mentions the breasts. However, there is no evidence that female breasts are more susceptible to injury than any other part of the human body (Gillette, 1985; Sullivan et al., 1980). Furthermore, the alleged causal relationship between trauma and breast cancer is not supported in the literature. Blows, punches or kicks to the breast sustained in contact/combat sports may produce bruises and, in extreme cases, a hard and sometimes painful lump may form in the fatty tissue (fat necrosis). Therefore, the wearing of chest protection is probably advisable, especially in martial arts (McLatchie, 1982). Depending on individual preference and physique, extra breast support may be helpful in increasing comfort during physical activity.

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Brotman, A.W.; Stern, T.A. Osteoporosis and pathologic fractures in anorexia nervosa. *American journal of psychiatry 142, 1985, 495-496.*

Caine, D.J.; Lindner, K.J. Overuse injuries of growing bones: the young female gymnast at risk? *Physician and sportsmedicine 13 (12), 1985, 51-54;56-61;64.* SIRC/CDS

Chard, M.D.; Lachmann, S.M. Racquet sports - patterns of injury presenting to a sports injury clinic. *British journal of sports medicine 21 (4), 1987, 150-153.* SIRC/CDS

Colby, J.; Fricker, P. Can we prevent back injuries to elite women gymnasts? *Sports science & medicine quarterly 1(1), 1984, 13-16.* SIRC/CDS

Collins, R.K. Injury patterns in women's intramural flag football. *American journal of sports medicine 15 (3), 1987, 238-242.* SIRC/CDS

DeHaven, K.E.; Lintner, D.M. Athletic injuries: comparison by age, sport, and gender. *American journal of sports medicine 14 (3), M1986, 218-224.* SIRC/CDS

Doodson, R. Going for the burn? A survey of injuries in 'exercises to music' classes. *Physiotherapy in sport 8 (1), 1985, 8-9.* SIRC/CDS

Eisenberg, I.; Allen, W.C. Injuries in a women's varsity athletic program. *Physician and sportsmedicine 6(3), 1978, 112-116;119-120.* SIRC/CDS

Feldman, W. Prospective study of school injuries: incidence, types, related factors and initial management. *Canadian Medical Association journal 129, 15 Dec 1983, 1279-1283.*

Fenley, L. Dance-exercise guidelines planned. *Physician and sportsmedicine 12(9), 1984, 31-32.* SIRC/CDS

Francis, L.L. et al. Aerobic dance injuries: a survey of instructors. *Physician and sportsmedicine 13(2), 1985, 105-111.* SIRC/CDS

Gillette, J. When and where women are injured in sports. *Physician and sportsmedicine 3(5), 1975, 61-63.* SIRC/CDS

Hage, P. Gymnastics injuries due to poor spotting. *Physician and sportsmedicine 11(5), 1983, 26.* SIRC/CDS

Hall, S.J. Mechanical contribution to lumbar stress injuries in female gymnasts. *Medicine and science in sports and exercise 18 (6), 1986, 599-602.* SIRC/CDS

Halvarsen, J. Hip pointer padding for women. *Physician and sportsmedicine 11(12), 1983, 123.* SIRC/CDS

Havkins, S.B. Head, neck, face, and shoulder injuries in female and male rugby players. *Physician and sportsmedicine 14 (7), 1986, 111-114;117-118.* SIRC/CDS

Haycock, C.E. The breast. *In, Shangold, M. and Mirkin, G. eds., Women and exercise: physiology and sports medicine. Philadelphia: F.A. Davis, 1988, p. 181-185.* SIRC/CDS

Haycock, C.E. Health concerns of women in sports. *Athletic purchasing and facilities 5(3), 1981, 62;64-65.* SIRC/CDS

Haycock, C.E. How I manage breast problems in athletes. *Physician and sportsmedicine 15 (3), 1987, 89-91;94-95.* SIRC/CDS

Haycock, C.E. Sports medicine for the athletic female. Oradell, N.J.: Medical Economics Co., 1980. SIRC/CDS

Holden, D.L.; Jackson, D.W. Stress fracture of the ribs in female rowers. *American journal of sports medicine 13 (5), 1985, 342-348.* SIRC/CDS

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Hunter, L.Y. Women's athletics: the orthopedic surgeon's viewpoint. *Clinics in sports medicine 3(4), 1984, 809-827.* SIRC/CDS

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Huurman, W.W. et al. Overuse injuries of the knee and spine in girls' gymnastics. *Clinics in sports medicine 3(4), 1984, 829-850.* SIRC/CDS

Jones, R.E. Common athletic injuries in women. *Comprehensive therapy 6(9), 1980, 47-49.* SIRC/CDS

Knortz, K.A.; Reinhart, R.S. Women's athletics: the athletic trainer's viewpoint. *Clinics in sports medicine 3(4), 1984, 851-868.* SIRC/CDS

Laughlin, W. et al. Aerobic dance injuries. *Physician and sportsmedicine 13(2), 1985, 114-120.* SIRC/CDS

Levine, M. et al. An analysis of individual stretching programs of intercollegiate athletes. *Physician and sportsmedicine 15 (3), 1987, 130-135;138.* SIRC/CDS

Lewis, C.G.; Strickland, R.W. Profile of the college female athlete. *Physician and sportsmedicine 11(3), 1983, 153-154;156.* SIRC/CDS

McAuley, E. et al. Injuries in women's gymnastics: the state of the art. *American journal of sports medicine 15 (6), 1987, 558-565.* SIRC/CDS

McLatchie, G. Women in combat sports. *In, McLatchie, G., Injuries in combat sports. Oxford: Oxford Press, 1982, p. 49-51.*

Michel, C.; Mandel, C. Surveillance médicale de jeunes sportifs pratiquant le patinage artistique sur glace. *Médecine du sport 59 (3), 25 mai 1985, 48-52.* CDS/SIRC

Orava, S. et al. Exertion injuries in female athletes. *British journal of sports medicine 15(4), 1981, 229-233.* SIRC/CDS

Read, M.T.F. Runner's stress fracture produced by an aerobic dance routine. *Case report. British journal of sports medicine 18(1), 1984, 40-41.* SIRC/CDS

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Richie, D.H. et al. Aerobic dance injuries: a retrospective study of instructors and participants. *Physician and sportsmedicine 13(2), 1985, 130-135;138;140.* SIRC/CDS

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Vander, L. et al. Cardiovascular complications of recreational physical activity. *Physician and sportsmedicine 10(6), 1982, 89-93;96;98.* SIRC/CDS

Walsh, W.M. et al. Overuse injuries of the knee and spine in girls' gymnastics. *Orthopedic clinics of North America 16 (2), 1985, 329-350.*

Weesner, C.L. et al. A comparison of anterior and posterior cruciate ligament laxity between female and male basketball players. *Physician and sportsmedicine 14 (5), 1986, 149-150;152-154.* SIRC/CDS

Wells, C.L. Athletic injuries. *In, Wells, C.L., Women, sport, and performance: a physiological perspective. Champaign, Ill.: Human Kinetics Publishers, 1985, p. 255-271.*

Whiteside, P.A. Men's and women's injuries in comparable sports. *Physician and sportsmedicine 8(3), 1980, 130-135;138.* SIRC/CDS

Williamson, D.M.; Lowdon, I.M.R. Ice-skating injuries. *Injury: British journal of accident surgery 17 (3), 1986, 205-207.* SIRC/CDS

Girls and Women with disabilities

The term "disabled" implies some kind of limitation in functioning — for example, in mobility, vision, hearing, mental processing or control of feelings (Nixon, 1984). Specific conditions such as asthma, congenital heart disease or diabetes may also limit general functioning and participation in physical activity.

In the area of sport, different levels of ability characterize all participants. Therefore sport may prove an effective integrator of disabled individuals, as long as the limitations experienced by one group do not make genuine integration impossible. Nixon (1984) discusses the concept of *appropriate integration*: options include controlled competition like the Special Olympics, parallel competition, as in wheelchair and nondisabled road racing, and adaptations to the activities, equipment, facilities or rules of a game to make integration possible. On the question of sex-integrated sport for disabled individuals, a female wheelchair athlete noted that, in the Cerebral Palsy Games, rifle shooting, archery and weight lifting had been men-only events and that her participation had often caused protest (Blanchard, 1983).

Accessibility of recreational facilities and programs is crucial to all disabled individuals, but, with females as a group having been socialized towards dependency and physical inactivity, this issue is particularly crucial. Furthermore, as members of a gender group which has been systematically discriminated against in sport, disabled girls and women are doubly disadvantaged. Several sources deal with the general issues related to women and disability, but rarely deal specifically with sport-related issues (Resources for Feminist Research 14(1), 1985; Forest and Snow, 1983; Campling, 1979).

Allen, A. Sports for the handicapped. New York: Walker, 1981. SIRC/CDS

Blanchard, L. Rachelle Halpenny: a woman first, an athlete second, and way at the other end of the scale, disabled. *Canadian woman studies 4(3), 1983, 66-67.* SIRC/CDS

Buchanan, S. Tired of wheelin' with the boys. *Breaking the silence 7 (1), 1988, 8-9.*

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Emes, C.; Ferris, B. Physical activity among activity-limited and disabled adults in Canada. L'activité physique chez les adultes handicapés ou limités dans leurs activités au Canada. Ottawa: Canada Fitness Survey / Enquête condition physique Canada, 1986. SIRC/CDS

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Mastro, J.V. et al. Cultural and attitudinal similarities: female and disabled individuals in sports and athletics. *Journal of physical education, recreation, and dance 59 (9), 1988, 80-83.* SIRC/CDS, SIRLS

McDonald, D.; Drewery, L. Hilda May Torok Binns, sports en fauteuil roulant. *Dans, McDonald, D. et Drewery, L. eds., À la gloire des Canadiennes: les meilleures athlètes du Canada. Toronto: John Wiley & Sons, 1981, p. 165-171.* CDS/SIRC

McDonald, D.; Drewery, L. Hilda May Torok Binns, wheelchair sports. *In, McDonald, D. and Drewery, L. eds., For the record: Canada's greatest women athletes. Toronto: John Wiley & Sons, 1981, p. 147-152.* SIRC/CDS

Nixon, H.L. The creation of appropriate integration opportunities in sport for disabled and nondisabled people: a guide for research and action. *Sociology of sport journal 1(2), 1984, 184-192.* SIRC/CDS, SIRLS

Nixon, H.L. Handicapism and sport: new directions for sport sociology research. *In, Theberge, N. and Donnelly, P. eds., Sport and the sociological imagination. Fort Worth, Tex.: Texas Christian University Press, 1984, p. 162-176.* SIRC/CDS, SIRLS

Sloan, L.; Kramer, A. Women with disabilities. *In, Sloan, L. and Kramer, A., Running: a women's handbook. London: Pandora, 1985, p. 15-24.*

Thierfeld, J. et al. From access to equity: opening doors for women athletes. *Sports 'n spokes 12 (1), 1986, 21-23.* SIRC/CDS

Wheelchair athletes: Physiological considerations

While physiological research abounds on female athletes in general, the special characteristics and needs of wheelchair athletes are under-researched. A 1983 study (Lussier et al.) claims to be the first attempt to quantify the body composition of female wheelchair athletes. The authors stressed the importance of determining optimal muscle mass and lean body mass for the daily functioning of all individuals in wheelchairs, and especially for wheelchair athletes. More attention has been paid to measuring and maintaining the fitness levels of individuals with lower-limb disability (Knowlton et al., 1981; Kofsky et al., 1983; Winnick and Short, 1984).

Coutts, K.D.; Stogryn, J.L. Aerobic and anaerobic power of Canadian wheelchair track athletes. *Medicine and science in sports and exercise 19 (1), 1987, 62-65.* SIRC/CDS

Ellis, K. Bibliography: exercise for the physically disabled. *Melpomene report 4 (1), 1985, 30.* SIRC/CDS

Frazee, R. et al. Exercise tolerance level of a young child with congenital heart disease associated with asplenia syndrome. *Adapted physical activity quarterly 1(4), 1984, 322-326.* SIRC/CDS

Hattin, H. et al. Are deaf children unusually fit? A comparison of fitness between deaf and blind children. *Adapted physical activity quarterly 3 (3), 1986, 268-275.* SIRC/CDS

Hedrick, B. Women's wheelchair basketball: a perspective on the US program. *Sports 'n spokes 11 (4), 1985, 14-17.* SIRC/CDS

Ho, M.S. et al. Ergometric heart rate, blood pressure and work capacity (PWC170) in type I diabetics with diabetes-specific microangiopathy. *Experimental and clinical endocrinology 82(3), 1983, 291-303.*

Horvat, M. et al. A comparison of the psychological characteristics of male and female able-bodied and wheelchair athletes. *Paraplegia 24 (2), 1986, 115-122.* SIRC/CDS, SIRLS

Knowlton, R.G. et al. Mechanical efficiency of wheelchair dependent women during wheelchair ergometry. *Canadian journal of applied sport sciences 6(4), 1981, 187-190.* SIRC/CDS

Kobberling, G. et al. Energy cost of locomotion in blind adolescents. *Adapted physical activity quarterly 6 (1), 1989, 58-67.* SIRC/CDS

Kofsky, P.R. et al. Field testing: assessment of physical fitness of disabled adults. *European journal of applied physiology and occupational physiology 51(1), 1983, 109-120.* SIRC/CDS

Lussier, L. et al. Body composition comparison in two elite female wheelchair athletes. *Paraplegia 21(1), 1983, 16-22.* SIRC/CDS

Marshall, T. Wheelchairs and marathon road racing. *British journal of sports medicine 18(4), 1984, 301-304.* SIRC/CDS

Minter, M.; Wolk, S. Knowledge and demonstration of physical fitness among a hearing-impaired postsecondary population: preliminary implications for curriculum. *Physical educator 44 (3), 1987, 363-368.* SIRC/CDS

Morris, A.F. A case study of a female ultramarathon wheelchair road user. *Paraplegia 24 (4), 1986, 260-264.* SIRC/CDS

Sundberg, S. Lung volume and exercise ventilation in blind and normal boys and girls. *Respiration 44(6), 1983, 444-449.* SIRC/CDS

Sundberg, S. Maximal oxygen uptake in relation to age in blind and normal boys and girls. *Acta paediatrica Scandinavica 71(4), 1982, 603-608.*

Valliant, P.M. et al. Psychological impact of sport on disabled athletes. *Psychological reports 56 (3), 1985, 923-929.* SIRC/CDS, SIRLS

Winnick, J.P.; Suny, F.X.S. A comparison of the physical fitness of the segregated and integrated hearing impaired adolescents. *Clinical kinesiology 42 (4), 1988, 104-109.* SIRC/CDS

Winnick, J.P.; Short, F.X. The physical fitness of youngsters with spinal neuromuscular conditions. *Adapted physical activity quarterly 1(1), 1984, 37-51.* SIRC/CDS

Other Resources / Ressources additionnelles

Browne, S. With the power of each breath: a disabled women's anthology. Pittsburgh: Cleis, 1985.

Campling, J. Better lives for disabled women. London: Virago, 1979.

Doucette, J. Violent acts against disabled women. Toronto: DisAbled Women's Network, 1987.

Kelly, S.; Stark, R. Sport and recreation for the disabled: an index of resource materials. Sport et loisirs pour handicapés: un répertoire de la littérature. Ottawa: Sport Information Resource Centre, 1984. SIRC/CDS, SIRLS

Matthews, G.F. Voices from the shadows. Women with disabilities speak out. Toronto: Women's Press, 1983. SIRC/CDS

No news is bad news. Report from the Standing Committee on the Status of Disabled Persons. Ottawa: House of Commons, 1988.

Sanford, W. Body image. *In, Boston Women's Health Book Collective, The new our bodies, ourselves. New York: Simon & Schuster, 1984, p. 5-10.*

Special issue on women and disability. Les femmes handicapées. *Resources for feminist research/Documentation sur la recherche féministe 14 (1), 1985.*

Special issue, women with disabilities. *Off our backs 11 (5), 1981.*

Stark, R. et al. Sport and recreation for the disabled: a bibliography 1984-1989. Sport et loisirs pour handicapés: une bibliographie 1984-1989. Gloucester, Ont.: Sport Information Resource Centre, 1990. SIRC/CDS

Thriving: newsletter of Disabled Women's Network of Canada/Réseau d'action des femmes handicapées du Canada, 776 East Georgia Street, Vancouver, BC, V6A 2A3.

Organizations / Organismes

Canadian Blind Sports Association/ Association canadienne des sports pour aveugles
1600 James Naismith Drive
Gloucester, Ont. K1N 5B4

Canadian Federation of Sport Organizations for the Disabled / Fédération canadienne des organisations de sport pour handicapés
1600 James Naismith Drive
Gloucester, Ont. K1N 5B4

Canadian Wheelchair Sports Association / Association canadienne des sports en fauteuil roulant
1600 James Naismith Drive
Gloucester, Ont. K1N 5B4

Disabled Women's Network (DAWN)-Canada
776 East Georgia St.
Vancouver B.C. V6A 2A3
(Information also available on DAWN provincial affiliates)

Coalition of Provincial Organizations of the Handicapped (COPOH)
926-294 Portage Ave.
Winnepeg, Manitoba R3C 0B9

Sports 'n Spokes
5201 North 19th Ave.
Phoenix, Arizona 85015
(Bimonthly magazine for wheelchair sports)

Chapter Five

Exercise and the Reproductive Function

Exercise and The Reproductive Function

Medical Practice and the Women's Health Movement

Certain physiological events in women's life cycles — menstruation, pregnancy and menopause — have traditionally been regarded by the predominantly male medical establishment as diseased conditions, requiring medical surveillance and intervention. Contemporary sportsmedicine literature is no exception to this trend, as the volume of research on delayed menarche and secondary amenorrhea among athletes illustrates.

There is a move towards the *adaptive* rather than the disease model on the part of some doctors. They argue that the variations in menarcheal age and menstrual functioning among physically active girls and women constitute an adaptation to their strenuous training regimens, just as the same kinds of variations in other female populations are adaptive, serving to reduce the risk of pregnancy at a time when women are undernourished (Bentley, 1985). The work of Prior and her associates takes this approach (see Table 1).

Unlike the disease model which entrenches the notion of the passive female patient, wholly dependent on the authority of her physician, the adaptive model is compatible with the feminist health principles of self-help, informed decision-making and avoidance of unnecessary drug therapy or surgical procedures. A useful explanation of the self-help approach is offered by the Vancouver Women's Health Collective:

> We have become used to thinking that only the medical 'experts' know about good health care. In fact, we all have valuable information and we can share it and learn together. We call this concept 'self-help' (Vancouver Women's Health Collective, 1984).

Therefore, while the bibliography for this section lists a wide range of studies, the emphasis in the following discussion will be on those which take the adaptive or self-help rather than the disease model approach.

A recent publication, *Psychology of the Female Body* (Ussher, 1989) brings together the full range of women's physical and mental health issues and subjects malestream medical views and practices to an incisive feminist critique. There are particularly useful discussions of menstruation, pregnancy and menopause, and an extensive bibliography.

1988 marked the publication of the first volume of *Women's Health Perspectives: An Annual Review* (Lappa, 1988, 1989). The contributors to this series, mostly women in US schools of nursing, evaluated over 500 recent international, English language journal articles, reports and studies related to women. Topics included sexuality, gynecological health, PMS, menopause, osteoporosis and health of older women. All contributors have adopted a self-help, woman-centred approach and provide review essays and critical annotations of the recent literature, drawing connections between health care information and the more general issues of women's economic, sexual and social status. This series is strongly recommended as a source of current, critical reviews of the medical literature on women's issues.

Table 1

Model Choices

	DISEASE	ADAPTATION
CAUSE	A single agent or presumed etiology	An integrated interaction of personal and environmental factors.
TIME COURSE	Continuous or worsening	Labile and reversible
DISABILITY	A present detriment in function/pain/ discomfort	A present positive effect, rare discomfort/ concern
PROGNOSIS	Risk for chronic disease, harm/ discomfort	Excellent No permanent impairment
THERAPY	a. A specific (external) agent b. Effective c. Without major side effects	a. Modulation of attitude/environment/ life-style. b. Do nothing to interfere with adaptation c. Cause no harm.
THERAPEUTIC RELATIONSHIP patient: physician	Passive: authoritarian	Active: consultative-supportive

Prior, J.C. Reproductive changes with exercise: when and how to evaluate, who and why to treat. In J. Puhl et al., eds. *Sport Science Perspectives for Women.* Champaign: Human Kinetics, 1988, 131-50.

Bégin, M. Redesigning health care for women. La refonte des soins de santé destinés aux femmes. *CRIAW/ICREF feminist perspectives féministes 14, 1988.*

Bentley, G. Hunter-gatherer energetics and fertility: a reassessment of the Kung San. *Human ecology 13 (1), 1985, 79-109.*

Bibliography: resources on "growing up female". *Melpomene report 7 (2), 1988, 28-29.* SIRC/CDS

Boston Women's Health Book Collective. The new our bodies, ourselves. New York: Simon & Schuster, 1984. SIRC/CDS

Breen, M. Taking care: a handbook about women's health. Peterborough, Ont.: YWCA, 1985.

Bremner, J. et al. Action on health barriers. Health promotion with low income women. Toronto: Opportunity for Advancement, 1988. SIRC/CDS

Brighton Women and Science Group. Alice through the microscope: the power of science over women's lives. London: Virago, 1980.

Cohen, L.; Backhouse, C. Women and health: the growing controversy. *Canadian women studies 1 (4), 1979, 4-10.*

Fee, E. Women and health care: a comparison of theories. *In, Dreifus, C. ed., Seizing our bodies: the politics of women's health. New York: Vintage Books, 1977, p. 279-297.*

Fee, E. Women and health: the politics of sex in medicine. New York: Baywood, 1983.

Johnson, K. Women's health care: an innovative model. *Women and health 6 (1/2), 1987, 305-312.*

Kenney, J.G. Contemporary women's health: models. Reading: Addison-Wesley, 1984.

Koeske, R. Lifting the curse of menstruation: toward a feminist perspective on the menstrual cycle. *Women and health 8 (2/3), 1983, 1-16.*

Laws, S. The sexual politics of pre-menstrual tension. *Women's studies international forum 6 (1), 1983, 19-31.*

Leppa, C.J. Women's health perspectives: an annual review. Vols. 1 and 2. Phoenix: Oryx, 1988, 1989.

Mahowald, M. Sex-role stereotypes in medicine. *Hypatia 2, Summer 1987, 21-38.*

McCrea, F. The politics of menopause: the discovery of a deficiency disease. *Social problems 31 (1), 1983, 9-21.*

McDonnell, K.; Valverde, M. The healthsharing book. Toronto: Women's Press, 1985.

Mintzes, B. Through the medical maze. *Healthsharing 8 (4), 1987, 17-20.*

Ontario Advisory Council on Women's Issues. Women and health. Toronto: Ontario Advisory Council on Women's Issues, 1988.

Ridington, J. Providing services the feminist way. *In, FitzGerald, M. ed. et al., Still ain't satisfied: Canadian feminism today. Toronto: Women's Press, 1982, p. 93-107.*

Rogers, J. New visions. Toronto: Boadicca Books, 1984.

Rosser, S. Feminism within the science and health care professions. New York: Pergamon, 1988.

Special issue on women's health. *Health promotion/Promotion de la santé 25 (4), Spring 1987.*

Ussher, J. The psychology of the female body. New York: Routledge, 1989.

Vancouver Women's Health Collective. Menopause: a self-help approach. Vancouver: Vancouver Women's Health Collective, 1984.

Vancouver Women's Health Collective. Premenstrual syndrome: a self-help approach. Vancouver: Vancouver Women's Health Collective, 1984.

Women talking about health. Vancouver: Vancouver Women's Health Collective, 1989.

Other Resources / Ressources additionnelles

A Friend Indeed/Une Véritable amie
4180 Wilson Ave.
Montreal, Quebec H4A 2T9
(Newsletter for menopausal women)

Healthsharing: A Canadian Women's Health Quarterly
14 Skey Lane
Toronto, Ontario M6J 3S4

Melpomene Report: A Journal of Women's Health Research
Melpomene Institute
316 University Drive
St. Paul Minnesota 55103

Vancouver Women's Health Collective
888 Burrard St.
Vancouver, B.C. V6Z 1X9
(Publications list available)

Menstrual Function

Menarche

Numerous studies in the last decade have identified a trend for female athletes to reach menarche up to three years later than non-athletic controls. It has been concluded that a combination of physical, hormonal, nutritional, psychological and environmental factors determine the onset of menstruation.

In terms of physical factors, a minimum "fatness level" is considered necessary for menarche. Hormonal factors are related to lean-fat ration, as well as to the direct effects of exercise on hormonal secretion. Energy drain associated with intense training regimens, in combination with inadequate caloric and protein intake, also delay menarche. Psychological factors are associated with the stress experienced by competitive athletes and dancers. Non-biological factors related to family size, birth order, place of dwelling and social class may also be important (Malina et al., 1979; Frisch et al., 1981; Warren, 1980; Brisson et al., 1982; Malina, 1983).

Frisch et al. (1981) suggested that early training in sport delayed maturation, but Malina (1983) proposed an alternative explanation based on selective processes. Some girls may begin, or continue, to train because they are late maturers and thus have the time to perfect their athletic skills before pubertal changes — fat patterning and changing physique, for example — interfere with their performance in certain sports. Late menarche also signifies a longer growth period, and the resulting longer limbs of these girls, combined with their thinness, may be a factor in their continued success as athletes or dancers (Warren, 1980).

Delayed menarche is so common among athletes that at least one gynecologist has suggested that it be considered as normal — the rule rather than the exception for female athletes (Matthews, 1982). Longitudinal studies show that delayed menarche may be associated with amenorrhea and temporary infertility, conditions which are reversible when strenuous training is reduced.

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Brisson, G.R. et al. Onset of menarche: a late event in pubertal progression to be affected by physical training. *Canadian journal of applied sport sciences 7(2), 1982, 61-67.* SIRC/CDS

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Frisch, R.E. et al. Delayed menarche and amenorrhea of college athletes in relation to age of onset of training. *JAMA 246(14), Oct 1981, 1559-1563.*

Frisch, R.E.; Revelle, R. Height and weight at menarche and a hypothesis of critical body weights and adolescent events. *Science 169, 1970, 397-399.*

Gulub, S. Menarche: the beginning of menstrual life. *Women and health 8 (2/3), 1983, 17-36.*

Katch, F.I.; Spiak, D.L. Validity of the Mellitis and Cheek method for body-fat estimation in relation to menstrual cycle status in athletes and non-athletes below 22 per cent fat. *Annals of human biology 11 (5), 1984, 389-396.*

Lutter, J.M.; Foster, C. Physical activity, menstrual patterns and menstrual beliefs of girls age 11-18: a descriptive report. *Melpomene report 2, Oct 1983, 7-11.* SIRC/CDS

Malina, R.M. et al. Age at menarche, family size, and birth order in athletes at the Montreal Olympic Games, 1976. *Medicine and science in sports 11(4), 1979, 354-358.* SIRC/CDS

Malina, R.M. Biological maturity status of young athletes. *In, Malina, R.M. ed., Young athletes: biological, psychological, and educational perspectives. Champaign, Ill.: Human Kinetics, 1988, p. 121-140.* SIRC/CDS

Malina, R.M. Growth, performance, activity, and training during adolescence. *In, Shangold, M. and Mirkin, G. eds., Women and exercise: physiology and sports medicine. Philadelphia: F.A. Davis, 1988, p. 120-128.* SIRC/CDS

Malina, R.M. Menarche in athletes: a synthesis and hypothesis. *Annals of human biology 10(1), 1983, 1-24.* SIRC/CDS

Matthews, A. Are periods necessary? *Medical news 14 (44), 18 Nov 1982, 35.*

Pellerin-Massicotte, J. et al. Effect of exercise on the onset of puberty, gonadoturopins, and ovarian inhibin. *Journal of applied physiology 63 (3), 1987, 1165-1173.* SIRC/CDS

Peltenburg, A.L. et al. Biological maturation, body composition, and growth of female gymnasts and control groups of schoolgirls and girl swimmers, aged 8 to 14 years: a cross-sectional survey of 1064 girls. *International journal of sports medicine 5(1), 1984, 36-42.* SIRC/CDS

Peltenburg, A.L. et al. Sex hormones profiles of premenarcheal athletes. *European journal of applied physiology and occupational physiology 52(4), 1984, 385-392.* SIRC/CDS

Pine, D. Study: premenarcheal athletes and nonathletes. *Physician and sportsmedicine 16 (11), 1988, 40;42.* SIRC/CDS

Scott, E.; Johnston, F. Critical fat, menarche and the maintenance of menstrual cycles: a critical review. *Journal of adolescent health care 2, 1982, 249-260.*

Stager, J.M.; Hatler, L.K. Menarche in athletes: the influence of genetics and prepubertal training. *Medicine and science in sports and exercise 20 (4), 1988, 369-373.* SIRC/CDS

Warren, M.P. Effects of exercise on pubertal progression and reproductive function in girls. *Journal of clinical endocrinology and metabolism 51(5), 1980, 1150-1157.*

Wyshak, G.; Frisch, R. Evidence for a secular trend in age of menarche. *New England journal of medicine 306, 29 Apr 1982, 1033-1035.*

Zonderland, M.L. et al. Plasma lipoprotein profile in relation to sex hormones in premenarcheal athletes. *International journal of sports medicine 7 (5), 1986, 241-245.* SIRC/CDS

Menstrual Cycle Variations

The reproductive system's adaptation to intense physical conditioning may include delayed menarche and secondary amenorrhea (no menses in 6 months) if the woman is not mature in reproduction before starting exercise. Oligomenorrhea (intervals of more than 36 days between periods), anovulation (failure to ovulate) and short luteal phase (when the second half of the menstrual cycle is shorter than ten days, a condition associated with infertility) are the changes that may occur in mature, ovulatory women. A woman can monitor ovulation and luteal phase length herself, by recording daily basal body temperature; this is a self-help technique which does not require invasive medical procedures (Magyar, 1979, Prior, 1983, Prior et al., 1990).

A number of factors, singly or in combination, contribute to the reproductive system's adaptive processes: physical or psychological stress, loss of weight or body fat and dietary/nutritional variations, which cause hormonal and hypothalamic changes (changes to the hormone-directing part of the brain) (Prior, 1985).Most studies show that the effects are reversible: a return to regular menstrual functioning occurs when body weight increases and/or when training programs or other stresses are reduced. For their part, female athletes do not necessarily view secondary amenorrhea as a problem (Abraham et al., 1982; Prior, 1982).

The low estrogen levels associated with amenorrhea may result in vaginal atrophy, as well as the obvious implications for fertility status, although it should not be assumed that amenorrheic women cannot become pregnant (Cohen et al., 1985). Unless pregnancy is desired, exercise levels need not be reduced.

Abraham, S.F. et al. Body weight, exercise and menstrual status among ballet dancers in training. *British journal of obstetrics and gynaecology 89(7), 1982, 507-510.* SIRC/CDS

Bonen, A.; Keizer, H.A. Athletic menstrual cycle irregularity: endocrine response to exercise and training. *Physician and sportsmedicine 12(8), 1984, 78-82;84-90;93-94.* SIRC/CDS

Boyden, T.W. et al. Impaired gonadotropin responses to gonadotropin-releasing hormone stimulation in endurance-trained women. *Fertility and sterility 41(3), 1984, 359-363.*

Boyden, T.W. Prolactin responses, menstrual cycles, and body composition of women runners. *Journal of clinical endocrinology and metabolism 54 (4), 1982, 711-714.*

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Bullen, B.A. et al. Endurance training effects on plasma hormonal responsiveness and sex hormone excretions. *Journal of applied physiology: respiratory environmental and exercise physiology 56(6), 1984, 1453-1463.* SIRC/CDS

Carlberg, K.A. et al. Survey of menstrual function in athletes. *European journal of applied physiology and occupational physiology 51(2), 1983, 211-222.* SIRC/CDS

Cumming, D.C. Defects in pulsatile LH release in normally menstruating runners. *Journal of clinical endocrinology and metabolism 60 (4), 1985, 810-812.*

Cumming, D.C.; Rebar, R.W. Exercise and reproductive function in women. *Progress in clinical and biological research 117, 1983, 113-125.*

Dale, E.; Goldberg, D.L. Implications of nutrition in athletes' menstrual cycle irregularities. *Canadian journal of applied sport sciences 7(2), 1982, 74-78.* SIRC/CDS

Deuster, P.A. et al. Nutritional intakes and status of highly trained amenorrheic and eumenorrheic women runners. *Fertility and sterility 46 (4), 1986, 636-643.* SIRC/CDS

Ellison, P.T. et al. Exercise-induced menstrual disorders. (letters) *New England journal of medicine 313 (13), 26 Sept 1985, 825-827.* SIRC/CDS

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Glass, A.R. et al. Amenorrhea in Olympic marathon runners. *Fertility and sterility 48 (5), Nov 1987, 740-745.*

Graham, S.B. Running and menstrual dysfunction - recent medical discoveries provide new insights into the human division of labor by sex. *American anthropologist 87 (4), 1985, 878-882.*

Jaffee, L.; Webster, M. Amenorrhea study. *Melpomene report 6 (1), 1987, 14.* SIRC/CDS

Jaffee, L. Exercise and menstrual function. *Melpomene report 6 (3), 1987, 28-29.* SIRC/CDS

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Amenorrhea and osteoporosis among athletes

Low estrogen and progesterone levels, which may increase susceptibility to osteoporosis, are found in amenorrheic athletes, as well as in amenorrheic sedentary women. Athletes who are menstruating regularly but are not ovulating or are experiencing a short luteal phase have normal estrogen levels but low progesterone levels. The alleged link between exercise-associated amenorrhea and bone loss has been a controversial subject since 1982, when it was first reported among a small number of female runners. (Cann et al, 1984; Gonzalez, 1982). Subsequent study and debate has pointed to problems of methodology, measurement and diagnosis associated with this line of research. Ovulatory women who train for a marathon have the same annual changes in bone as do sedentary women (Prior, 1988). The role of nutrition, overlooked in some of the earlier studies, is being carefully considered. (Caldwell, 1984; Lutter, 1983). Calcium supplementation is recommended as a safe preventive measure.

Work currently in progress (Prior et al.) is investigating the effects of running exercise on bone, making an important distinction between cortical bone (found in the tibia) and trabecular bone (found in the spine); it is hypothesized that cortical bone will increase in density in runners, more than in normally active women, while trabecular bone may decrease if anovulation develops and progesterone levels are low. It is further hypothesized that there may be catch-up trabecular bone 'growth' with the return to ovulatory cycles.

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Molimina and premenstrual symptoms

Women who ovulate regularly experience many kinds of cyclic changes, some positive and some negative. While these changes are experienced more intensely by some women, none are inherently pathological (Laws, 1983). They may include appetite changes, breast tenderness, fluid retention and mood changes. All these are normal changes which indicate ovulation and are termed molimina (Magyar, 1979). When the normal changes of molimina are more severe or of longer duration, they may be defined as premenstrual tension (Prior, personal communication).

On the question of cyclic changes and athletic performance, two studies found little or no effect on exercise-induced metabolic responses, except in subjects who fasted or were deprived of fluids for 24 hours prior to exercise. In fasting subjects, the differences in response occurred during the luteal (premenstrual) phase (Gaebelein and Senay, 1982; Bonen et al., 1983). In this regard, however, it is known that female athletes have performed at their best in international competition at every stage of the menstrual cycle, as well as during pregnancy.

For some women, premenstrual changes may be severe enough to warrant treatment. A recent study conducted by Prior showed that moderate aerobic exercise was effective in decreasing these symptoms. Yoga and relaxation have also been recommended. Dietary forms of treatment include calorie, sodium and caffeine reduction and increased intake of water and vitamin B6 supplement (Caldwell, 1984; Grandjean, 1984; Vancouver Women's Health Collective, 1984).

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Zita, J. The premenstrual syndrome: dis-easing the female cycle. *Hypatia 3 (1), 1988, 77-99.*

Other Resources / Ressources additionnelles

What people are calling PMS: a film about premenstrual changes. Directed by Haida Paul. National Film Board, 1988.

In control/Auto contrôle. A premenstrual stress support newsletter
Canadian Association for Understanding Premenstrual Changes
4815 Bessborough, #4
Montreal, P.Q. H4V 2S2
514-485-7950

Pregnancy and Lactation

From the time of Zaharieva's 1972 study of Olympic athletes, there has been increasing evidence that physical activity has no harmful effects on women's childbearing functions. Conversely, it has been amply demonstrated that athletic performance need not suffer as a result of pregnancy. Pregnant athletes have won Olympic medals, and many women, on resuming training, have surpassed personal bests achieved before pregnancy (Zaharieva, 1972).

Recent studies have suggested that physically fit women with normal pregnancies who exercise regularly have shorter labours, larger babies and fewer complications (e.g., Cesarian sections) than those who do not exercise (Kaufman and Hall, 1985). Although data are inconclusive and medical opinion tends to be conservative, it is generally agreed that aerobic exercise has no harmful effects, and that a non-weight-bearing activity such as swimming is probably beneficial (Sibley et al., 1981; Saubert, 1984). Few studies have investigated psychological benefits to pregnant women as a result of regular physical activity. The interaction of physiological and psychological effects may be a factor in the positive outcomes documented in recent studies (see Psychological Considerations, p. 86).

Maternal fitness level before conception is a factor in determining the level of exercise needed for an aerobic training effect during pregnancy. Ventilation, oxygen consumption and carbon dioxide production have been found to increase as pregnancy progresses, with gains in

body weight accounting for most of the changes. Thus, exercising at reduced speed — walking instead of running, for example — may achieve the desired training effect in the later stages, although some women have maintained their running programs throughout pregnancy (Dressendorfer, 1978; Sibley et al., 1981; Hutchinson et al., 1981; Dibblee and Graham, 1983). Studies of fetal heart rate and fetal movement have shown increases during maternal exercise (up to 80% maternal aerobic capacity), but these increases have been within normal limits (Hauth et al., 1982; Collings et al., 1983; Dale et al., 1982). Recent guidelines issued by the American College of Obstetrics and Gynecology address questions of intensity, temperature, nutrition and weight gain (Caldwell and Jopke, 1985).

There are specific concerns associated with participation in contact sports and in some water sports, since collisions and falls may be injurious to the pregnant woman and/or the fetus. Some studies of the effects of scuba diving on maternal and fetal health (in non-human subjects) indicate a high risk of decompression sickness and related problems. The results of human studies remain inconclusive, and therefore most advice on this issue is conservative, perhaps unnecessarily so, since it has been observed that Korean women who earn their living through diving continue through pregnancy and lactation with no ill-effects (Kizer, 1981; Ibrahimoff, 1984).

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Menopause

For several years, the North American women's health movement has been working towards the demedicalization of menopause. Nonmedical approaches to women's own management of menopause-associated problems include: changes in dietary and (weight-bearing) exercise patterns; vitamin and mineral supplements; participation in self-help groups and workshops; relaxation exercises and stress reduction. Prior et al. have reported that a conditioning program can control the menopausal symptoms of vasomotor instability and depression for most women as well as preventing age-related osteoporosis. (See Physical activity and age-related osteoporosis, p. 106).

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Prior, J.C. Work in progress. Vancouver: University of British Columbia.

Special issue. Women in the later years: health, social and cultural perspectives. *Women and health 14 (3/4), 1988.*

Special menopause issue. *Healthsharing 8 (1), 1986.*

Vancouver Women's Health Collective. Menopause: a self-help approach. Vancouver: Vancouver Women's Health Collective, 1984.

Voda, A. Menopause, the closure of menstrual life. *Women and health 3 (2/3), 1983, 137-156.*

Other Resources / Ressources additionnelles

A Friend Indeed: Newsletter about menopause
PO Box 515
Place du Parc station
Montreal, P.Q. H2W 2P1

Hot Flash: Newsletter for midlife and older women
c/o Dr. Jane Porcino
Box 816
Stony Brook, New York, 11790-0609, USA

Is it hot in here? L. Alper and H. Paul. National Film Board, 1986.

The best time of my life. P. Watson. National Film Board, 1986.

Une Véritable Amie
PO Box 515
Place du Parc station
Montréal, P.Q. H2W 2P1

Chapter 6

Conclusion and Suggestions

Conclusion and Suggestions

It is clear from the volume and scope of this book that there is a considerable body of literature addressing most aspects of girls' and women's participation in sport and physical activity. As in other areas of research concerning women, however, many important questions have been neglected or have been formulated in such a way that the research fails to disclose a true or complete picture.

On issues where feminist scholarship has developed more fully — employment and education, for example — the research has benefitted from a cross-disciplinary approach, whereas the sport-related research tends to keep within rigid disciplinary boundaries. As a result, social-cultural factors have been neglected in most of the scientific research, while, for their part, investigators in the social sciences have often failed to incorporate the most recent physiological findings into their analyses. Furthermore, although there are well-developed feminist critiques of science and medicine in general, research and practice in the fields of exercise physiology and sport medicine rarely have been challenged. A new journal from the University of Illinois, *Women in Sport and Physical Activity,* may address some of these issues.

These patterns in sport-related research have important implications for women in sport leadership and for those engaged in advocacy. The crucial links between feminist analysis and feminist political practice are weakened when there is a dearth of women-centered research, as the continuing debate over the integration issue clearly demonstrates. The links need to be maintained in both directions. Women in sport leadership or advocacy, for example, may identify areas where there is a need for research, or the research itself may serve to generate program or advocacy initiatives. Alternatively, feminists might debate the desirability of perpetuating *any* aspect of sport as it is currently constituted, choosing instead to work towards the development of physical activities that are conducive to cooperation, enjoyment and lifelong participation.

Some suggestions for issues, strategies and actions in research, sport leadership and advocacy are given below. This is not intended as an exhaustive list, but is simply a first step in a long and demanding enterprise.

Research

Issues

- effects of social class and race/ethnicity on girls' and women's participation in sport/physical activity
- historical and contemporary relationships between sport/fitness, gender and female sexuality
- full documentation on Canadian women's sporting history
- ongoing feminist critique of sex-related bias in exercise physiology research
- ongoing feminist critique of "disease model" approach to sport gynecology
- factors in women's career choices as athletes, coaches or administrators

Strategies and Actions

- a clearinghouse for new feminist research related to sport/physical activity across all the disciplines
- a national conference on women and sport/physical activity
- the introduction of exercise physiology and sports gynecology issues into the women's health movement literature
- major research projects in areas where there are gaps in knowledge and understanding of women's sport-related issues
- research using large representative samples of women to increase the reliability and validity of findings
- multidisciplinary research studying the interactions between physiological and social-cultural factors

- networks to provide institutional support and safeguards for researchers who adopt a critical, feminist perspective

- education of researchers toward a fundamental rethinking of the research process — by taking adequate account of gender

- revision of undergraduate courses in the sport sciences to ensure that they are free of gender bias.

Sport Leadership

Issues

- the public and private barriers to women's full participation in various levels of sport leadership. For example:

  — coaching school or community teams as a volunteer
  — upgrading coaching skills and qualifications
  — coaching/administering a nontraditional sport
  — problems of women's autonomy and career paths in amalgamated athletic departments/organizations

- a lack of sport/fitness opportunities for specific groups, for example:

  — disabled women
  — overweight women
  — late starters
  — adolescents
  — mothers of young children

Strategies and Actions

- women's coaching clinics and certificate courses at all levels in all sports

- feminist alternatives to commercial fitness clubs, weight loss clinics and televised dance exercise programs

- development of women-only team sports, running/cycling clubs, outdoor education programs, clubs for special interest groups, all with day care provisions

- role model programs to encourage girls' participation in school and community sport/physical activity

- forums and workshops for women in sport leadership to discuss the integration issue and to develop strategies based on a *full* and *accurate* understanding of its implications

Advocacy

Issues

- barriers to funding and publication of feminist scholarship on issues related to sport and physical activity, particularly in sport medicine

- the use and abuse of outdated physiological data to justify institutionalized and/or legislated sex discrimination in sport

- the use and abuse of statistics on female participation to justify limited programs and opportunities for girls and women in school, university and community sport

- inadequate and distorted media coverage of female athletes and active women

Strategies and Action

- collaboration and solidarity with women's advocacy groups in health, education, community services, media monitoring, research and political action

- full support for human rights or Charter cases involving sex discrimination in sport

- presentation of briefs and other lobbying efforts directed towards departments of sport/fitness, boards of education, parks and recreation departments, the Canadian Radio-Television and Telecommunications Commission and task forces investigating related issues

- support for and participation in the equity initiatives of CAHPER and other professional associations

- support for and participation in the advocacy efforts of CAAWS.

- boycott of sponsors of media advertising/programming which distorts and exploits women in sport/fitness

- lobby of journal and book publishers to develop policies requiring non-sexist language and content

- lobby of granting agencies to develop policies requiring researchers to use non-sexist language and content and giving priority to research that incorporates an adequate analysis of gender issues

- lobby of provincial ministries of sport and recreation to proceed quickly with the development and implementation of policies on women

- support for the efforts of NSO women's committees and others in lobbying the International Olympic Committee for more sports and events for women in 1996

(Note: Some recommendations were adopted from the *Policy Seminar, Summary Report, International Conference on Exercise, Fitness and Health*, Toronto, June 2-3, 1988, p.23).

Appendix A

Women's Organizations

Status of Women Committees

Alberta Status of Women Action Committee
c/o Women's Resource Centre
202-325 6th St. South
Lethbridge, Alta. T1J 2C7

Alberta Status of Women Action Committee
Box 1673
Edmonton, Alta. T2R 0G9

Bay St. George Status of Women Council
Box 501
Stephenville, Nfld. A2N 2T7

Calgary Status of Women Action Committee
304-233 12th Ave. South West
Calgary, Alta. T2R 0G9

Conseil du statut de la femme
Bureau 300, rue Cook
Québec, Qué. G1R 5J7

Fédération des femmes du Québec
1265 rue Berri, bureau 820
Montréal, Qué. H2L 4E4

Gateway Status of Women Council
Gateway Women's Centre, Box 312
Port aux Basques, Nfld. A0M 1C0

Labrador West Status of Women Council
Box 171
Labrador City, Labrador, Nfld. A2V 2K5

London Status of Women Action Group
Box 3161
London, Ont. N6A 4J4

Manitoba Action Committee on the Status of Women
16-222 Osburne St.
Winnipeg, Man. R3L 1Z3

Manitoba Action Committee on the Status of Women
#133 – 10th St.
Brandon, Man. R7A 4E7

New Brunswick Action Committee on the Status of Women
386 St. George St.
Moncton, NB E1C 1X2

Newfoundland Advisory Council on the Status of Women
131 Le Marchand Rd.
St. John's, Nfld. A1C 2H3

Northwest Territories Advisory Council on the Status of Women
Box 1320
Yellowknife, NWT Z1A 2L9

Nova Scotia Advisory Council on the Status of Women
Box 745, 1657 Barrington St.
Halifax, NS B3J 2T3

Ontario Status of Women Council
700 Bay St., 3rd Floor
Toronto, Ont. M5G 1Z6

Prince Edward Island Advisory Council on the Status of Women
Box 2000
Charlottetown, PEI C1A 7N8

Red Deer Status of Women Association
#109 – 4818 Gaetz Ave.
Red Deer, Alta. T4N 4A3

Saskatchewan Action Committee, Status of Women
2204 McIntyre St.
Regina, Sask. S4P 5R9

St. John's Status of Women Council
Box 6072
St. John's, Nfld. A1C 5X8

Thompson Action Committee on the Status of Women
Box 722
Thompson, Man. R8N 1N5

Vancouver Status of Women
1220 Grant St.
Vancouver, BC V5L 2Y6

Victoria Status of Women Action Group
Box 6296, Station C
Victoria, BC V8W 1J6

Yukon Status of Women Council, Women's Centre
302 Steele St.
Whitehorse, Yukon Y1A 2C5

National women's organizations

Canadian Advisory Council on the Status of Women/Conseil consultatif canadien de la situation de la femme
Box 1541, Station B
Ottawa, Ont. K1P 5R5

Canadian Association for the Advancement of Women and Sport and Physical Activity/ Association canadienne pour l'avancement de la femme, du sport et l'activité physique (CAAW&S/ACAFS)
323 Chapel St.
Ottawa, Ont. K1N 7Z2

Canadian Research Institute for the Advancement of Women/Institut canadien de recherches sur les femmes (CRIAW/ICREF)
151 Slater St., Suite 408
Ottawa, Ont. K1P 6C4

Canadian Congress on Learning Opportunities for Women/Congrès canadien pour la promotion des études chez la femme (CCLOW/CCPEF)
47 Main Street
Toronto, Ont. M4E 2V6

Evaluation-Medias
C.P. 1687, succ. H
Montreal, Que. H3G 2N6

Media Watch
#250-1820 Fir Street
Vancouver, BC V6K 3B1

National Action Committee on the Status of Women/Comité national d'action sur le statut de la femme
344 Bloor St. W., #505
Toronto, Ont. M5S 1W9

National Association of Women and the Law/Association nationale de la femme et le droit (NAWL/ANFD)
400-1 Nicolas Street
Ottawa, Ont. K1N 7B7
(Caucuses in each province)

Women's Legal Education and Action Fund/ Fonds d'action et d'éducation pour les femmes (LEAF/FAEJ)
489 College St., Suite 403
Toronto, Ont. M6G 1A5
(Contacts in each province)

Health

Calgary Women's Health Collective
316-223 12th Ave. South West
Calgary, Alta. T2R 0G9

Centre de santé des femmes de Montréal
16, boul. Saint-Joseph est
Montréal, Qué. H2T 1G8

DisAbled Women's Network Canada
776 East Georgia St.
Vancouver, BC V6A 2A3
(Groups in each province)

Edmonton Women's Health Collective
P.O. Box 4134
Edmonton, Alta. T6E 4T2

Montreal Health Press/Les Presses de la santé de Montréal
Box 1000, Station Place du Parc
Montréal, Qué. H2W 2N1

Northwestern Ontario Women's Health Information Network
Suite 17, 8A North Cumberland Street
Thunder Bay, Ont. P7B 5Z3

Pictou Women's Health Project
c/o Alexandra Keir, P.O. Box 965
New Glasgow, NS B2H 5K7

Regina Healthsharing
Box 734
Regina, Sask. S4P 3A8

Regroupement des centres de santé du Québec
P.O. Box 1197, Station Place du Parc
Montréal, Qué. H2W 2P4

Toronto Women's Health Network, c/o L. Spring
1880 Davenport Rd.
Toronto, Ont. M6N 4Y2

Vancouver Women's Health Collective
888 Burrard Street
Vancouver, BC V6Z 1X9

Women Unlimited, c/o Cheryl Aucoin
84 Grandview Street
Sydney, NS B1P 3N6

Women's Health Education Network (WHEN)
P.O. Box 99
Debert, NS B0M 1G0

Women's Health Interaction
58 Arthur Street
Ottawa, Ont. K1R 7B9

Women Today
Box 1405
Clinton, Ont. N0M 1L0

Women's Health Clinic
419 Graham Ave., #304
Winnipeg, Man. R3C 0M3

Women's Health Education Network
Box 99
Debert, NS B0M 1G0

Women's Health Resources
1402-8th Ave. Northwest
Calgary, Alta. T2N 1B9

Miscellaneous

Association féminine d'éducation et d'action social (AFEAS)
180 est, boul. Dorchester, suite 200
Montréal, Qué. H2X 1N6

Gay Games and Cultural Festival
c/o Metropolitan Vancouver Athletic and Arts Association
1170 Bute Street
Vancouver, BC V6E 1Z6

Women for Political Action (WPA)
Box 1213, Station Q
Toronto, Ont. M4T 2P4

Women's Education & Research Foundation of Ontario, Inc.
17 Chalmers St.
London, Ont. N5Y 4E8

Women's Research Centre
1666 West Broadway
Vancouver, BC V6J 1X6

Appendix B

Canadian Feminist Periodicals and Journals

Classifications:
Health (H)
Education (E)
Academic (A)
General feminist (F)

A Friend Indeed (H)
Box 515, Station Place du Parc
Montreal, Que. H2W 2P1

Atlantis: A women's studies journal (A)
Mount Saint Vincent University
166 Bedford Highway
Halifax, N.S. B3M 2J6

Breaking the Silence (F)
Box 4857, Station E
Ottawa, Ont. K1A 5J1

Cauldron (F)
c/o Reading Room
384 Queen St.
Fredericton, NB E3B 1B2

Canadian Journal of Women and the Law (A)
323 Chapel St.
Ottawa, Ont. K1N 7Z2

Canadian Woman Studies (A)
York University, 4700 Keele Street
Downsview, Ont. M3J 1P3

Cayenne (F)
229 College Street, Suite 303
Toronto, Ont. M5T 1R4

Common Ground (F)
81 Prince St.
Charlottetown, PEI C1A 4R3

Communiqu'elles (F)
3585, rue St-Urbain
Montréal, Qué. H2X 2N6

Diva: A quarterly journal of South Asian women (F)
253 College Street, Unit 194
Toronto, Ont. M5T 1R5

Feminist Action (F)
344 Bloor St. W., Suite 505
Toronto, Ont. M5S 1W9

Fireweed (F)
Box 279, Station B
Toronto, Ont. M5T 2W2

Healthmatters (H)
888 Burrard Street
Vancouver, BC V6Z 1X9

Healthnetwork News (H)
Northwestern Ontario Women's Health Information Network
8A N. Cumberland St., Suite 17
North Bay, Ont. P7A 4L1

Healthsharing (H)
14 Skey Lane
Toronto, Ont. M6J 3S4

Images: Kootenay Women's Paper (F)
Box 736
Nelson, BC V1L 5R4

In Control: A PMS Newsletter/ Auto-contrôle (H)
4815 Bessborough, #4
Montreal, Que. H4V 2S2

Kinesis (F)
301-1720 Grant Street
Vancouver, BC V2C 1Z5

Maternal Health News (H)
P.O. Box 46563, Station G
Vancouver, BC V6R 4G8

Network of Saskatchewan Women (F)
2149 Albert St.
Regina, Sask. S4P 2V1

The Newsmagazine for Alberta Women (F)
#213, 8204 – 104 St.
Edmonton, Alta. T6E 4E6

Northern Women's Journal (F)
184 Camelot Street
Thunder Bay, Ont. P7A 4A9

The Optimst (F)
Yukon Status of Women Council
302 Steele Street
Whitehorse, Yukon Y1A 2C5

Our Lives (F)
P.O. Box 248, Stn. P
Toronto, Ont. M5S 2S8

Pandora (F)
Pandora Publishing Association
Box 1209, North
Halifax, NS B3K 5H4

Resources for Feminist Research (A)
OISE, 252 Bloor Street West
Toronto, Ont. M5S 1V6

Action: the newsmagazine of women in sport and physical activity (F)
CAAWS, 323 Chapel Street
Ottawa, Ont. K1N 7Z2

Tapestry: Okanagan and Shuswap Women's Quarterly (F)
P.O. Box 1242
Vernon, BC V1T 6N6

Tiger Lily (F)
192 Cobourg St.
Stratford, Ont. N5A 3E8

Vitality (H)
R.R. 2
West River Station, NS B0K 1Z0

Women and Environments (F)
455 Spadina Avenue, Room 426
Toronto, Ont. M5S 2G8

Women's Education (E)
Canadian Congress on
Learning Opportunities for Women
47 Main St.
Toronto, Ont. M4E 2V6

Women's Health Interaction (H)
c/o Inter Pares
50 Arthur St.
Ottawa, Ont. K1K 7B9

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